TECHNICAL MEMORANDUM
SEPTEMBER 1998 GROUNDWATER MONITORING REPORT

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Montgomery Watson File No. 1252042

Prepared For:

ACS RD/RA Executive Committee

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SEPTEMBER 1998 GROUNDWATER MONITORING REPORT

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

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EXECUTIVE SUMMARY

The long term groundwater monitoring plan at the American Chemical Service, Inc. (ACS) National Priorities List (NPL) Site in Griffith, Indiana consists of semi-annual sampling of the 47 wells in the monitoring network. In addition, three of the monitoring wells, MW48, MW49, and MW9R are sampled on a quarterly basis and five private wells in the vicinity of the Site are sampled once each year. For one of the semi-annual sampling events, the monitoring well samples are analyzed for the full Target Compound List and Target Analyte List (TCL/TAL) parameters. For the other major sampling event, the samples are analyzed for a reduced list of indicator parameters.

This Technical Memorandum summarizes the September 1998 groundwater monitoring activities at the ACS NPL Site. The September sampling combined the minor, three-well sampling event, with the sampling of the five private wells, and also with the collection of samples for the Monitored Natural Attenuation (MNA) study. All samples and analyses were conducted in accordance with the September 1997 U. S. Environmental Protection Agency (U.S. EPA) approved sampling plan.

SITE HYDROGEOLOGY

The regional groundwater flow in the upper aquifer is from east to west in the vicinity of the ACS facility. The flow is diverted to the north and to the south by the barrier wall, installed as part of the ACS remedy. The potentiometric surface to the northwest of the Site (including the wetland area) is relatively flat due to the effects of the PGCS trench, barrier wall, and discharge points from the groundwater treatment plant effluent. Depressed water levels in the Town of Griffith Landfill, reflect the activity of the leachate collection system (LCS).

Horizontal groundwater flow in the lower aquifer is northward with a hydraulic gradient of 0.00029. This gradient is consistent with previous lower aquifer data presented in earlier groundwater technical memoranda.

Vertical gradients were calculated across three aquifer horizons: 1) the upper aquifer in the wetland area, 2) the upper and lower aquifers, and 3) the lower aquifer. All gradients were consistent with previous findings. Vertical gradients measured in the wetland area were upwards, and were generally very low. Strong downward vertical gradients were measured between the upper and lower aquifer. Vertical gradients measured in the lower aquifer were variable; of the calculated gradients, five were downward, three were upward, and seven were within the margin of potential error in water level measurement. This variability indicates that there is not an overall trend in vertical gradient data in the lower aquifer.

ANALYTICAL RESULTS – UPPER AQUIFER

For discussion purposes, the upper aquifer flow system was divided into three regions for analysis: the North Area, South Area, and the Griffith Landfill. The North Area extends northward from the north end of the Site near the On-Site Containment Area, and the South Area extends southeasterly from the barrier wall at the southern end of the Off-Site Area.

Groundwater sampling within the shallow aquifer during the September 1998 event was limited to monitoring wells MW48 and MW49 in the North Area. Chloroethane and benzene continue to be detected in MW48 and MW49 within the range of previous detections. There were no VOC baseline exceedances in September samples from either of these wells. There was one inorganic exceedance of one baseline value for arsenic in MW49. The baseline maximum concentration for arsenic in MW49 is 38 ug/L and the September 1998 detected concentration is 46 ug/L.

ANALYTICAL RESULTS - LOWER AQUIFER

In accordance with the Agency-approved monitoring plan, one lower aquifer monitoring well, MW9R, was sampled during the September 1998 event. Chloroethane and benzene continue to be detected in MW9R with concentrations within the range of previous detections in MW9/MW9R. The downward trend in benzene concentration since monitoring well MW9 was replaced appears to be continuing. There were no semi-volatile organic compounds (SVOC), pesticide, polychlorinated biphenyl (PCB), or inorganic baseline exceedances in the lower aquifer.

PRIVATE WELL SAMPLE RESULTS

In accordance with the approved long term monitoring plan, five private wells were sampled for TCL organic compounds (VOCs, SVOCs, pesticides, and PCBs). No TCL organic compounds were detected in any of the private wells. Inorganic analytes were detected in the private well samples; however, none exceeded any maximum contaminant level (MCL).

GROUNDWATER TREATMENT SYSTEM RESULTS

A separate Report will be submitted that includes a discussion and data evaluation for the groundwater treatment system effluent samples.

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1.0 INTRODUCTION

1.1 LONG TERM GROUNDWATER MONITORING PLAN

The long term groundwater monitoring plan at the American Chemical Service, Inc. (ACS) National Priorities List (NPL) Site in Griffith, Indiana generally consists of two major sampling events each year and two minor sampling events. The major sampling events consist of sample collection at the 47 monitoring wells in the monitoring network. For one of the semi-annual sampling events, the groundwater samples are analyzed for full scan TCL/TAL parameters. For the other semi-annual sampling event, the samples are analyzed for a reduced list of indicator parameters. The indicator parameters are tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethene (DCE), 1,2-dichloroethane (1,2-DCA), vinyl chloride (VC), chloroethane, benzene, arsenic, and lead.

The minor sampling events consist of sampling three monitoring wells within the monitoring network, which showed variable contaminant concentrations during the baseline sampling. These include upper aquifer monitoring wells MW48 and MW49, and lower aquifer monitoring well MW9R. Samples from monitoring wells MW48 and MW49 are to be analyzed for the indicator parameters and the sample from MW9R is to be analyzed for the full TCL/TAL parameter list.

Once annually, samples are to be collected from five private wells and analyzed for the full scan TCL/TAL parameters.

1.2 OBJECTIVES AND SCOPE OF SEPTEMBER 1998 SAMPLING

The September 1998 sampling combined a minor sampling event (three monitoring wells) with the sampling of five residential wells. In addition, as part of the two year monitored natural attenuation study, samples were collected from eight monitoring wells for the analysis of biological parameters.

The following objectives from the long term groundwater monitoring plan apply to the quarterly sampling at the ACS NPL Site.

1. Collect water level data to monitor groundwater flow in the upper and lower aquifers and calculate the hydraulic gradients between the aquifers.

2. Collect water level data to document the performance of the PGCS and barrier wall extraction system (BWES) and to evaluate changes in the groundwater flow system resulting from the remedial actions (these activities are outlined in the Performance Standard Verification Plan, April 1997). The September 1998 Groundwater Treatment System Monitoring Report is submitted under separate cover and includes information on Objectives 2 and 3.

3. Collect and analyze samples of treated water to document compliance with the effluent standards.

4. Collect and analyze groundwater samples from the interior of the areas of contaminated groundwater to document how concentrations change with time and in response to the remedial actions.

5. Assess progress toward attaining cleanup objectives in contaminated areas.

1.3 ORGANIZATION OF TECHNICAL MEMORANDUM

The results of the September 1998 groundwater monitoring activities at the ACS NPL Site are presented in the following sections of this report:

- Section 1 Objectives and scope of the groundwater monitoring activities
- Section 2 Field data collection activities
- Section 3 Evaluation of the September 1998 sampling data
- Section 4 Summary and Conclusions

Tables, figures and appendices are presented at the end of this report.

A baseline sampling report was completed following the September 1997 sampling and included a long-term Groundwater Monitoring Plan. In accordance with the U.S. EPA-approved Groundwater Monitoring Plan, this Technical Memorandum compares the September 1998 groundwater analytical results to the highest detected concentrations observed, for each well and parameter, during the baseline sampling. This comparison table is found in Appendix A.

2.0 FIELD DATA COLLECTION ACTIVITIES SEPTEMBER 1998

Field activities were conducted from September 14 through September 17, 1998 at the ACS Site. The groundwater monitoring activities were conducted in accordance with the U.S. EPA-approved Specific Operating Procedures (SOPs), the draft Quality Assurance Project Plan (QAPP), and U.S. EPA comments regarding the draft QAPP. The September 1998 groundwater sampling event consisted of the following activities:

- Measurement of water levels in 142 upper and lower aquifer wells, piezometers, and staff gauges on September 14, 1998.

- Collection of groundwater samples from: two monitoring wells screened in the upper aquifer and analysis for indicator parameters; eight monitoring wells screened in the upper aquifer and analysis for natural attenuation parameters; and one monitoring well screened in the lower aquifer and analysis for TCL and TAL parameters. Samples were collected from September 15 through September 17, 1998.

- Collection of groundwater samples from five residential wells from September 15 through September 17, 1998 and analysis for TCL and TAL parameters.

2.1 WATER LEVELS

Water level measurements were collected at upper and lower aquifer wells, piezometers, and surface water staff gauges on September 14, 1998. The water level measurements were utilized to determine groundwater flow directions in the upper and lower aquifers, and vertical gradients both within and between the aquifers. Table 1 contains water level measurements, map coordinates (reference points), top of inside well casing elevations, and calculated groundwater elevations for the measurement points.

2.2 GROUNDWATER SAMPLING

The groundwater samples for the September 1998 event were sent overnight under chain-of-custody to Quanterra Environmental Services Laboratory where they were analyzed for parameters as summarized in Tables 2 and 3. The tables summarize well identification, well screen depth, area of groundwater contamination, location with respect to area of groundwater contamination, and monitoring parameters. Table 4 summarizes the residential wells that were sampled in September 1998.

Prior to sampling, each monitoring well was purged using low-flow methods in accordance with the approved Monitoring Well Sampling SOP for the Upper Aquifer Investigation (revision: March 21, 1997). Field parameters (pH, specific conductivity, temperature, dissolved oxygen (DO) and turbidity) were measured and recorded during well purging activities. Table 5 presents a summary of the field parameter results.

3.0 EVALUATION OF SEPTEMBER 1998 SAMPLING DATA

3.1 GROUNDWATER FLOW SYSTEM DATA

Water table and potentiometric surface maps were developed for the upper and lower aquifers, respectively. The overall horizontal hydraulic gradient was also calculated for the lower aquifer. Vertical hydraulic gradients were calculated across three aquifer horizons: 1) the upper aquifer in the wetland area, 2) the lower aquifer, and 3) between the upper and lower aquifers. The following sections present and discuss the general flow directions in the upper and lower aquifers and the calculated gradients.

Vertical hydraulic gradients were calculated for both the upper and lower aquifers using water level measurement data from adjacent wells and piezometers screened at different depths within each aquifer.

3.1.1 Groundwater Flow in the Upper Aquifer

The upper aquifer matrix is a homogeneous silty sand with no evidence of interlayering or bedding complexities. Very little interpolation was required to develop detailed contour plots because of the large number of data points (12 staff gauges, 28 wells, and more than 100 piezometers). All water table maps developed for the ACS Site since the remedial investigation in 1991 have consistently shown the same general groundwater flow patterns. The contour lines defining the water table clearly show consistent groundwater flow pathways from recharge to discharge areas. "Upgradient to downgradient"

The barrier wall has affected the groundwater flow by preventing groundwater flow directly to the west from the area east of Colfax Avenue. The natural regional groundwater flow is diverted north/northwest around the north end of the barrier wall and to the south/southeast. Figure 1 presents the upper aquifer water table elevations.

3.1.2 Vertical Gradients in the Upper Aquifer

Table 6 shows the upper aquifer vertical gradient calculations based on the September 1998 water level measurements. These are shown in their historical context in the tabulation below:

Piezometer Nest	November 1996	March 1997	June 1997	September 1997	December 1997	June 1998	September 1998
P64/P65	0.000	0.016	-0.062	0.022	0.016	0.020	0.016
P66/P67	0.005	-0.003	0.013	0.007	0.002	0.005	0.004
P68/P69	0.000	0.010	0.002	0.003	0.007	0.003	0.005
P70/P71	0.006	0.030	0.042	0.035	0.037	0.023	0.057

As in the past, the vertical gradients in the upper aquifer were calculated by dividing the difference in head between nested piezometers by the distance between screen midpoints. From these accumulated data, it is apparent that the vertical gradients are generally upward, which is the typical occurrence in a wetland area where groundwater discharges to the surface.

3.1.3 Groundwater Flow in the Lower Aquifer

The lower aquifer groundwater elevations listed in Table 1 were used to develop a potentiometric surface map for the lower aquifer (Figure 2). The groundwater flow in the lower aquifer is essentially northward, consistent with historical groundwater data. The horizontal hydraulic gradient in the lower aquifer was calculated using the measured difference in head between MW22, located south of the Site, and MW10C, located at the northern Site boundary. This difference, 0.84 feet on September 14, 1998, was divided by the lateral distance between the two wells (2,850 feet). Based on this calculation, the horizontal hydraulic gradient in the lower aquifer is 0.00029. This is consistent with the relatively low gradients historically calculated for the lower aquifer, as summarized below.

Report of Hydraulic Gradient in Lower Aquifer		Horizontal Hydraulic Gradient
Remedial Investigation Report	(June 1991)	0.0006
Technical Memorandum	(October 1995)	0.00041
Lower Aquifer Tech Memo	(September 1996)	0.00047
Groundwater Monitoring Report	(August 1996)	0.00047
Groundwater Monitoring Report	(November 1996)	0.00049
Groundwater Monitoring Report	(March 1997)	0.00040
Groundwater Monitoring Report	(June 1997)	0.00044
Groundwater Monitoring Report	(September 1997)	0.00035
Groundwater Monitoring Report	(December 1997)	0.00039
Groundwater Monitoring Report	(June 1998)	0.00042
September 1998 Groundwater Monitoring Report		0.00029

3.1.4 Vertical Gradients in the Lower Aquifer

Seven nested well sets are screened in the lower aquifer. At each location, there are between two and four monitoring wells and/or piezometers, each screened at a different depth within the lower aquifer. The depth intervals include the uppermost portion, the upper portion, the middle portion, and the lower portion.

The water levels measured in each of these wells (Table 1) were used to calculate vertical hydraulic gradients in the lower aquifer at each location. Table 7 summarizes the calculated vertical gradients. Calculated vertical gradients from September 1998 are shown in their historical context in the following tabulation:

Well/Piezo Nest	March 1997	June 1997	September 1997	December 1997	June 1998	September 1998
MW7/MW36	-0.0006	-0.0010	NM	-0.0005	-0.0010	NM
MW8/MW32	NM	NM	NA	NM	NM	NM
MW9R/MW34	0.0005	NM	NM	NM	NM	NM
MW51/MW33	NM	NM	NM	-0.0040	-0.0076	NM
MW28/PZ43	NM	NM	NM	NM	0.0021	0.0045
MW52/MW53	-0.0008	-0.0004	-0.0004	-0.0008	-0.001	-0.0006
MW54R/MW55	0.0008	NM	NM	-0.0012	NM	NM

Notes

NM = Indicates that the vertical gradient was not measurable.

NA = A water level necessary for the calculation was not available.

The majority of the calculated vertical gradients across the lower aquifer indicate a downward gradient. However, most of the accumulated data are variable. The only consistent vertical gradient is observed downward at well nest MW52/MW53.

3.1.5 Vertical Gradient Between Upper and Lower Aquifer

Groundwater elevations from upper and lower aquifer monitoring points were utilized to calculate the vertical hydraulic gradient between the two aquifers at three locations (P28/MW8, P27/MW9R, and P8/MW7). These are summarized in Table 8 and they are consistent with previous findings. Vertical gradients were calculated by dividing the difference in head between the upper and lower aquifer wells by the thickness of the clay-confining layer between the two wells. The results imply that a relatively strong and variable downward gradient exists between the two aquifers. The average groundwater elevations in the upper and lower aquifers are approximately 630 and 621 feet above mean sea level (amsl), respectively. The confining clay layer between the upper and lower aquifer varies in thickness from greater than 30 feet in the south to less than 5 feet in the wetland to the northwest (MW10C area). The variability in calculated downward gradients are due, therefore, to the variable thickness of the clay confining layer rather than the difference in head between the upper to lower aquifer.

3.2 MONITORING WELL SAMPLE DATA

Groundwater samples were analyzed for indicator parameters (PCE, TCE, TCA, DCE, 1,2-DCA, VC, chloroethane, benzene, arsenic, and lead), natural attenuation parameters (sulfate, orthophosphate, TOC, TKN, nitrate, nitrite, ammonia, and BOD), or TCL organic and TAL inorganic parameters. The laboratory results were validated in accordance with U.S. EPA Region V guidelines, *U.S. EPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (2/94)* and *Inorganic Data Review (2/94).* Evaluation of the data is discussed in Section 4.0. Validation narratives and laboratory analytical reports for samples from the upper aquifer and the lower aquifer are provided in Appendices C and D, respectively. The analytical results for the September 1998 quarterly sampling were evaluated for evidence of contaminant migration, changes in contaminant concentrations over time in response to remedial actions, and the presence of contaminants

in the lower aquifer. Time trend plots for monitoring wells MW48, MW49 and MW9R are presented in Appendix B. The following sections summarize the results of the organic analyses in the upper aquifer (Section 3.2.1), the organic analyses in the lower aquifer (Section3.2.2), and the inorganic analyses in both aquifers (Section 3.2.3).

3.2.1 Groundwater Sampling Results in the Upper Aquifer

The areas of groundwater concern in the upper aquifer, as organized by the upper aquifer's flow pattern, include the ACS Site and adjacent areas to the north (the North Area) and south/southwest of Colfax Avenue (the South Area). The ACS Site, except for the wetlands, has been identified as the source of groundwater contamination. The Site source areas are presently contained within the barrier wall, which serves to contain the source and prevent future migration of contaminants to the adjacent areas. Because the source is contained, the groundwater monitoring program is focused on the adjacent areas not confined by the barrier wall. The surrounding areas are: the area north of the ACS Site, referred to as the North Area; the area south/southwest of Colfax, referred to as the South Area; and the Town of Griffith Landfill, which covers the area to the southwest of the ACS Site.

In accordance with the approved long-term monitoring plan, the groundwater sampling within the upper aquifer during September 1998 was limited to monitoring wells MW48 and MW49, located in the North Area. Table 9 and Figure 3 present a summary of TCL organic compounds detected in groundwater samples collected from those wells during the September 1998 sampling event.

3.2.1.1 VOCs

The contamination in the North Area is comprised primarily of chloroethane and benzene. One other VOC, 1,2-dichloroethene, was detected at relatively low concentrations (below Contract-Required Detection Limit). None of the VOC concentrations exceeded maximum baseline concentrations.

Chloroethane and benzene continue to be detected in MW48 and MW49, with concentrations within the range of previous detections. Concentrations of benzene and chloroethane have decreased slightly in MW48 since June 1998 and increased slightly in MW49 since June 1998. Time trend plots for these compounds are found in Appendix B. The VOC concentrations in September 1998 do not exceed maximum baseline concentrations.

3.2.1.2 SVOCs

SVOCs were not analyzed as part of the September 1998 groundwater monitoring activities within the upper aquifer.

3.2.1.3 Pesticides and PCBs

Pesticides and PCBs were not analyzed as part of the September 1998 groundwater monitoring activities within the upper aquifer.

3.2.1.4 Tentatively Identified Compounds (TICS)

Three tentatively identified compounds (TICS) were detected in upper aquifer monitoring well MW48 and two TICS were detected in MW49. One TIC, 3,3,5-trimethcyclohexanone, was reported in both monitoring wells MW48 (24.57 µg/L (JN/)) and MW49 (23.45 µg/L (JN/)). The complete listing of TICs is compiled in Appendix C along with the analytical results.

3.2.2 Groundwater Sampling Results from the Lower Aquifer

The TCL organic compounds detected in the groundwater sample collected from lower aquifer monitoring well MW9R during the September 1998 sampling event are summarized in Table 10 and on Figure 4. Analytical results are provided in Appendix D.

3.2.2.1 VOCs

Chloroethane and benzene were detected in MW9R at concentrations within the range of previous detections for MW9/MW9R. Benzene concentrations decreased slightly since the June 1998 sampling event while chloroethane concentrations increased slightly since June 1998. A time trend plot for these compounds is found in Appendix B. The VOC concentrations in September 1998 do not exceed maximum baseline concentrations.

Benzene was detected in MW9R at a concentration of 100 µg/L, which is below the baseline maximum concentration. The following tabulation shows the concentration of benzene has decreased with the installation of MW9R.

MW9 VOC	Jan 1991	Jan 1995	Nov 1996	Mar 1997	Jun 1997	Sept 1997	Dec 1997	June* 1998	Sept* 1998
Benzene (µg/L)	<5	40	310	310	280	290	260	110	100

*sample collected from replacement well MW9R

3.2.2.2 SVOCs

No SVOCs were detected in the sample from lower aquifer monitoring well MW9R during the September 1998 sampling event.

3.2.2.3 Pesticides and PCBs

No pesticides or PCBs were detected in the sample from lower aquifer monitoring well MW9R during the September 1998 sampling event.

3.2.2.4 Tentatively Identified Compounds (TICS)

No TICS were detected in the sample from lower aquifer monitoring well MW9R during the September 1998 sampling event.

3.2.3 Inorganic Chemical Species

The September 1998 inorganic results and maximum baseline concentrations are compiled in Appendix A. Table 11 summarizes the wells and inorganic species that had baseline exceedances during the September 1998 sampling event. Only one monitoring well,

MW49, had an inorganic exceedance of one baseline value, arsenic. It is likely that this exceedance is representative of statistical scatter and, therefore, not significant.

3.3 PRIVATE WELL SAMPLING

Five private wells, each screened in the lower aquifer, were sampled during the September 1998 groundwater sampling event. These included the following:

Well Identifier	Street Address
PW-Y	1002 Reder Road
PW-A	1007 Reder Road
PW-B	1009 Reder Road
PW-C	1029 Reder Road
PW-D	1033 Reder Road

The well locations are shown on Figure 5. Each well was sampled following the approved private well sampling protocol, and the samples were analyzed for full scan TCL/TAL parameters.

No TCL organic compounds (VOCs, SVOCs, pesticides, and PCBs) were detected in any of the private wells. Although inorganic analytes were detected in the private well samples, none exceeded any maximum contaminant level (MCL). (MCLs are the maximum permissible level of a contaminant in water, which is delivered to any user of a public water system.) Table 12 summarizes the detected inorganic analytes and corresponding MCLs.

It should be noted that benzene was present (up to 7,800 ug/L) in the two on-Site shallow monitoring well samples collected from MW48 and MW49, which were analyzed interspersed with the private well samples. Four private well samples and the field blank, which were run after the contaminated samples, had low concentrations of benzene (less than the CRQL of 10 ug/L). These concentrations are likely the result of instrument carryover. The benzene results for the private wells, therefore, were qualified as undetected ("U").

3.4 NATURAL ATTENUATION SAMPLES

A plan for a natural attenuation study was developed in July 1997 to evaluate the potential for intrinsic remediation in the groundwater outside of the barrier wall. The plan developed was generally consistent with the U.S.EPA OSWER Directive 9200.4-17, Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites. This plan was then submitted to the U.S.EPA for review before implementation.

As part of the plan a two-phase field investigation is currently being conducted to collect data for a monitored natural attenuation study. The two phases are a baseline and trend. The results of the field investigation are being evaluated for the following:

1. Temporal and spatial trends of contaminant degradation;

2. Temporal and spatial trends in daughter product and metabolic by-product concentrations;

3. The distribution and availability of electron acceptors such as oxygen, nitrate, and sulfate necessary for degradation to occur; and

4. Other factors such as the physical and chemical composition of the subsurface that may limit degradation.

The baseline phase of the natural attenuation study consisted of analyzing data from both soil and groundwater samples collected at the ACS Site. Montgomery Watson collected eight soil samples on January 27, 1998 as part of the investigation. Soil samples were collected from three locations in each plume from the middle of the upper aquifer: downgradient of the plume, within the plume, and at the edge of the plume. The soil samples were analyzed for total organic carbon (TOC), nitrite, nitrate, pH, sulfate, total kjeldahl nitrogen (TKN), ammonia-nitrogen, ortho-phosphate, soil moisture holding capacity, percent air-filled pore space, comparative enumeration assays for aerobic total heterotrophs, aerobic hydrocarbon degraders, and acridine orange direct counts.

As part of the Trend phase, groundwater wells located upgradient of each plume, within each plume, at the edge of each plume, and downgradient of the plume for each of the plumes were sampled for evaluation of natural attenuation parameters (TOC, biochemical oxygen demand (BOD), nitrate-nitrogen, nitrite-nitrogen, sulfate, TKN, ammonia-nitrogen, and ortho-phosphate) beginning in June 1997. Six quarters of biological groundwater data have been collected; two more quarters are planned. Results of the biological analytical parameters for the September 1998 sampling event are summarized in Table 13. A separate analysis and preliminary report for this data will be prepared and submitted under separate following completion of the two-year quarterly sampling sequence.

4.0 SUMMARY AND CONCLUSIONS

4.1 SUMMARY OF GROUNDWATER FLOW SYSTEMS

The groundwater flow systems for both the upper and lower aquifers are consistent with previous quarterly monitoring events. Groundwater flow within the upper aquifer, in general, is from the east and is diverted by the barrier wall toward the north/northwest and south/southwest, around the ACS Site. Vertical gradients within the upper aquifer below the wetlands are upwards. Consistent with historical data, the groundwater flow within the lower aquifer is essentially northward. Vertical gradients measured within the lower aquifer were either low or variable. Vertical gradients between the upper and lower aquifers were downward as in the past. There were no significant changes or deviations from the baseline groundwater flow system.

4.2 SUMMARY OF MONITORING WELL SAMPLE DATA

VOCs were detected in all three monitoring well samples collected from both the upper and lower aquifers. No VOCs exceeded baseline concentrations within the upper and lower aquifers.

SVOCs were not analyzed in the upper aquifer samples and were not detected in the lower aquifer groundwater sample.

Pesticides and PCBs were not analyzed in the upper aquifer samples and were not detected in the lower aquifer groundwater sample.

Inorganic compounds were detected in both the upper and lower aquifer samples. One naturally ocurring inorganic analyte, arsenic, exceeded the baseline concentration in MW49. However, this exceedance did not meet the criteria to consider it potentially statistically significant.

Three TICS were detected in upper aquifer monitoring well MW48. Two TICS were detected in upper aquifer monitoring well MW49. TICS were not detected in lower aquifer monitoring well MW9R.

4.3 SUMMARY OF PRIVATE WELL SAMPLE DATA

TCL organic compounds (VOCs, SVOCs, pesticides, and PCBs) were not detected in any of the private wells. Naturally occurring inorganic analytes were detected in the private well samples; however, none exceeded any corresponding maximum contaminant level (MCL).

4.4 NATURAL ATTENUATION

Additional field and groundwater parameters were recorded and analyzed for the eight upper aquifer monitoring wells included in the natural attenuation study during the September 1998 sampling event.

4.5 CONCLUSIONS

The following conclusions can be drawn for each objective of the Groundwater Monitoring Plan.

Objective 1 was to collect water level data to monitor groundwater flow in the upper and lower aquifers and calculate the hydraulic gradients between the aquifers. The data collected indicates that groundwater flow directions and groundwater gradients for the September 1998 sampling event are consistent with past conditions for both the upper and lower aquifers.

Objective 2 was to collect water level data to document the performance of the PGCS and BWES and to evaluate changes in the groundwater flow system resulting from the remedial actions. The data indicate the barrier wall is containing the groundwater enclosed within the wall. In general, groundwater flow is from the east and is diverted toward the north/northwest and south/southeast. The groundwater is also diverted north/northwest around the north end of the barrier wall and is collected in the PGCS extraction trench or discharged to the drainage ditch (just beyond MW48). Groundwater diverted south flows toward the south/southwest. These observations are consistent with previous observations.

Objective 3 was to collect and analyze samples of treated water to document compliance with the effluent standards. One effluent sample was collected from the treatment plant during the September 1998 sampling event to document compliance with the effluent standards. All compounds and analytes detected in the effluent sample were below permitted effluent discharge standards.

Objective 4 was to collect and analyze groundwater samples from the interior of the areas of contaminated groundwater to document how concentrations change with time and in response to the remedial actions. Analytical results for samples collected from inside the contaminated areas do not indicate any exceedance of baseline concentrations for organic compounds in both the upper and lower aquifers. The one inorganic baseline exceedance of arsenic in MW49 is likely attributable to statistical scatter and does not meet the criteria for potential statistical significance.

TABLE 1 : not surveyed's

Objective 5 was to assess progress toward attaining cleanup objectives in the contaminated areas. Although it appears the interim remedial measures (Barrier Wall and PGCS) are operating as intended, it is yet too early to conclude that there is progress toward attaining cleanup objectives in contaminated areas.

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Table 1
Groundwater Elevations - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Lower Aquifer Wells/Piezometers

Well Designation	Reference Points			9/14/98		Notes
	East	North	TOIC	Depth	Elevation	
MW-7	6113	6732	641.46	20.70	620.76	
MW-8	5934	7506	640.43	19.95	620.48	
MW31	5907	7505	641.64	21.15	620.49	
MW32	5902	7507	641.84	21.35	620.49	
MW-9R	4893	7003	639.21	18.32	620.89	
MW29	4886	7012	638.06	17.17	620.89	
MW34	4880	7002	638.14	17.24	620.90	
MW30	5194	7774	634.25	13.91	620.34	
MW33	5189	7774	634.13	13.80	620.33	
MW51	5198	7767	634.16	13.81	620.35	
MW-10C	5229	7554	637.45	16.73	620.72	
MW-22	5208	4898	636.48	14.92	621.56	
MW-23	4717	7404	633.31	12.54	620.77	
MW-24	4596	8033	635.22	14.82	620.40	
MW28	5657	5696	648.77	27.44	621.33	
MW50	5269	5383	649.43	28.10	621.33	
ATMW-4D	5297	7311	637.99	17.30	620.69	
M-4D	4949	6538	633.32	12.45	620.87	Griffith Landfill Well
MW52	4996	7814	632.74	12.28	620.46	
MW53	4977	7833	632.87	12.44	620.43	
MW54R						Not Surveyed
MW55	5595	7604	636.63	16.35	620.28	
PZ44	6170	6766	638.47	NM	NM	
PZ42	5662	5696	648.44	26.92	621.52	
PZ43	5662	5702	648.69	27.25	621.44	

Table 1
Groundwater Elevations - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Upper Aquifer Wells

Well Designation	Reference Points			9/14/98		Notes
	East	North	TOIC	Depth	Elevation	
MW-6	5298	5520	655.28	23.46	631.82	
MW-11	6377	7329	640.47	9.57	630.90	
MW-12	6019	6352	642.74	10.11	632.63	
MW-13	5050	7814	634.08	4.48	629.60	
MW-14	4882	6995	638.56	10.56	628.00	
MW-15	4721	5003	637.89	6.80	631.09	
MW-18	5836	5746	644.89	10.40	634.49	
MW-19	5231	4943	635.78	4.76	631.02	
MW37	5395	7976	636.78	8.28	628.50	
MW38	5903	8216	636.51	7.70	628.81	
MW39	6253	7947	637.77	7.48	630.29	
MW40	6349	6831	639.46	8.29	631.17	
MW41	6242	4517	632.74	8.52	624.22	
MW42	6264	3808	632.32	NM	NM	Not Found
MW43	5880	3719	633.56	NM	NM	Not Found
MW44	5390	4303	633.04	5.10	627.94	
MW45	5830	4388	635.35	7.40	627.95	
MW46	4526	7424	633.32	NM	NM	Surrounded by several feet of water
MW47	5958	5084	640.54	8.20	632.34	
MW48	5669	7814	636.36	6.76	629.60	
MW49	5551	7650	637.00	7.10	629.90	
M-1S	4362	5743	639.09	8.43	630.66	Griffith Landfill Well
M-4S	4953	6537	633.42	4.99	628.43	Griffith Landfill Well

Staff Gauges

Well Designation	Reference Points			9/14/98		Notes
	East	North	TOSG	Depth	Elevation	
SG-1	5023	6196	633.50	NA	NA	Dry
SG-2	4423	6864	622.84	NA	NA	Dry
SG-3	4180	7123	631.17	2.00	629.17	
SG-5	5464	7713	633.36	NA	NA	Dry
SG-6	4495	8075	632.97	2.82	630.15	
SG-7	5403	6889	637.01	2.30	634.71	
SG-8R	5409	5252	634.70	1.70	633.00	
SG-11	5859	8245	634.62	NA	NA	Dry
SG-12	5596	7867	634.12	NA	NA	Dry

Table 1
Groundwater Elevations - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Piezometers

Well Designation	Reference Points			9/14/98		Notes
	East	North	TOC	Depth	Elevation	
LW-1	4807	5070	644.57	13.26	631.31	Griffith Landfill Well
LW-2	4662	5465	649.70	18.14	631.56	Griffith Landfill Well
P-3	5453	6470	639.87	5.68	634.19	
P-4	5432	6228	639.25	NM	NM	Destroyed
P-5	5285	6510	636.70	4.83	631.87	
P-6	5150	6551	638.75	NM	NM	Destroyed
P-7	5950	6630	643.63	11.04	632.59	
P-8	6156	6734	639.27	6.90	632.37	
P-9	6134	6994	638.88	6.75	632.13	
P-10	5413	5852	649.32	NM	NM	Damaged
P-11	5199	5900	649.14	14.39	634.75	
P-12	5076	5723	650.08	NM	NM	Covered by spoils management tarp
P-13	4878	5735	651.20	18.88	632.32	
P-15	5003	6187	639.93	9.39	630.54	
P-16	4673	5749	648.80	16.00	632.80	
P-17	4584	6006	654.64	22.65	631.99	
P-18	4623	6224	649.84	6.30	643.54	
P-22	4636	6732	634.30	7.97	626.33	
P-23	4689	7018	636.18	8.30	627.88	
P-24	5002	7178	636.06	7.45	628.61	
P-25	5131	7510	635.01	6.74	628.27	
P-26	4764	7309	634.23	5.49	628.74	
P-27	4904	7020	639.70	11.45	628.25	
P-28	5883	7486	644.53	13.37	631.16	
P-29	5738	6619	642.37	7.94	634.43	
P-30	5626	6793	642.42	NM	NM	Damaged
P-31	5480	7159	641.03	6.71	634.32	
P-32	5746	7026	642.32	7.71	634.61	
P-35	5515	6572	641.44	NM	NM	Damaged
P-36	5410	6851	645.89	11.15	634.74	
P-37	5330	6949	641.37	NM	NM	Destroyed
P-38	5149	6992	639.87	NM	NM	Destroyed
P-39	5940	6902	642.00	7.56	634.44	
P-40	5931	7241	638.77	6.68	632.09	
P-41	5663	7377	637.23	5.66	631.57	
P-49	5145	6949	638.98	4.86	634.12	
P-50	5129	6964	639.59	NM	NM	Destroyed
P-51	3876	6859	635.07	NM	NM	Not Found
P-52	4100	7845	636.66	NM	NM	Not Found
P-53	4597	8015	636.18	6.18	630.00	
P-54	4936	8081	638.28	8.35	629.93	
P-55	5628	7979	636.08	8.32	627.76	
P-56	6405	7665	639.46	7.90	631.56	
P-59	6389	6590	639.22	NM	NM	Not Found
P-60	6111	6051	640.23	7.32	632.91	
P-61	5533	5284	638.58	7.34	631.24	
P-62	5665	4945	637.06	6.56	630.50	
P-63	5483	7689	637.70	8.16	629.54	
EW-1	5113	6942	639.50	NM	NM	Destroyed
P-64	4617	7065	634.87	6.90	627.97	
P-65	4615	7063	634.77	6.72	628.05	
P-66	4729	7034	636.02	8.01	628.01	
P-67	4732	7034	636.06	8.02	628.04	
P-68	4743	7752	634.48	3.80	630.68	
P-69	4741	7751	634.66	3.95	630.71	
P-70	4880	7680	635.38	5.88	629.50	
P-71	4876	7682	635.32	5.48	629.84	

Table 1
Groundwater Elevations - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

New Piezometers - Upper Aquifer

Well Designation	Reference Points			9/14/98		Notes
	East	North	TOC	Depth	Elevation	
P-81	5577	7581	636.19	6.44	629.75	
P-82	5577	7572	635.77	6.05	629.72	
P-83	5577	7562	635.95	6.23	629.72	
P-84	5322	7603	634.35	5.46	628.89	
P-85	5326	7594	634.08	4.79	629.29	
P-86	5329	7585	634.41	5.00	629.41	
P-87	5121	7466	633.88	5.67	628.21	
P-88	5130	7460	633.90	6.10	627.80	
P-89	5137	7454	634.02	6.04	627.98	
P-90	4881	7152	632.59	4.60	627.99	
P-91	4889	7145	632.97	5.04	627.93	
P-92	4896	7138	633.63	6.60	627.03	
P-93	5136	7067	638.79	8.50	630.29	
P-94	5146	7061	638.98	NM	NM	Damaged
P-95	5146	6532	638.58	9.35	629.23	
P-96	5156	6537	638.39	11.62	626.77	
P-97	5098	6283	638.39	8.40	629.99	
P-98	5130	6279	639.35	11.48	627.87	
P-99	5020	5945	644.35	12.37	631.98	
P-100	5031	5948	643.93	9.28	634.65	
P-101	5550	5979	650.08	17.55	632.53	
P-102	5517	5996	647.18	12.74	634.44	
P-103	5672	6248	644.97	12.70	632.27	
P-104	6267	5639	646.68	12.22	634.46	
P-105	6678	5885	638.86	6.13	632.73	
P-106	6685	5871	638.10	4.15	633.95	
P-107	5766	7339	637.42	6.23	631.19	
P-108	5757	7324	638.13	3.80	634.33	

Note
All depth measurements and elevations are in units of feet.

Table 2
Upper Aquifer Wells Sampled - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

	Area of Groundwater Contamination	Well Identification	Location with Respect to Area of GW Contamination	Monitoring Parameters September 1998
1	North	MW40	Upgradient	Biological
2		MW48	Internal	Indicators/Biological
3		MW49	Internal	Indicators
4		MW39	Sidegradient	Biological
5		MW38	Downgradient	Biological
6	South	MW18	Upgradient	Biological
7		MW19	Internal	Biological
8		MW45	Internal	Biological
9		MW41	Side Gradient	Biological

Notes:

Indicators: PCE, TCE, TCA, DCE, 1,2-PCA, VC, Chloroethane, Benzene, Arsenic and Lead.

Biological: Sulfate, ortho phosphate, TOC, nitrate, nitrite, TKN, ammonia, and BOD.

Table 3
Lower Aquifer Wells Sampled - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

	Well Identification	Well Screen Depth in Lower Aquifer	Location with Respect to Area of GW Contamination	Monitoring Parameters September 1998
1	MW9R	Upper	Internal	TCL/TAL

Notes:

TCL/TAL: Full scan Target Compound List and Target Analyte List Parameters

APE/JMS/JJN
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Table 4
Residential Wells Sampled - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

	Residential Well Identification	Location with Respect to Area of GW Contamination	Monitoring Parameters September 1998
1	RW1002 (PW-Y)	internal	TCL/TAL
2	RW1007 (PW-A)	internal	TCL/TAL
3	RW1009 (PW-B)	internal	TCL/TAL
4	RW1029 (PW-C)	upgradient	TCL/TAL
5	RW1033 (PW-D)	upgradient	TCL/TAL

Notes:

TCL/TAL: Full scan Target Compound List and Target Analyte List Parameters

RW1002 = Residential Well - 1002 Reder Road

All residential wells sampled were located on Reder Road

Residential wells sampled are located in the Lower Aquifer. Whereas low concentrations of contamination were found in the Upper Aquifer in this Area.

Table 5
Summary of Field Parameter Results
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Well ID	Field Parameters					
	pH (std. units)	Conductivity (mhos/cm)	Conductivity (adjusted to 25°C)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
MW9R	6.70	1692	2080	15.68	12.9	3.12
MW18	7.12	557	677	16.11	0.0	3.09
MW19	7.31	5166	6062	17.61	3.7	1.98
MW38	6.34	468	534	18.80	21.1	4.40
MW39	6.62	1473	1737	17.40	1.6	2.21
MW40	6.60	332	396	16.94	13.0	0.74
MW41	6.59	407	460	19.28	20.0	4.66
MW45	6.66	1196	1409	17.45	0.0	2.53
MW48	6.52	855	1012	17.23	0.0	0.97
MW49	6.47	701	800	18.79	6.3	2.40
RW1002 (PW-Y)	7.25	724	923	14.23	0.0	4.44
RW1007 (PW-A)	7.26	230	276	16.68	7.4	4.88
RW1009 (PW-B)	7.24	737	880	16.87	0.0	5.63
RW1029 (PW-C)	7.17	911	1168	14.00	0.0	6.76
RW1033 (PW-D)	6.91	856	1126	13.02	3.2	2.83

Notes:
NTU = Nephelometric Turbidity Units
RW1002 = Residential Well - 1002 Reder Road
All residential wells sampled were located on Reder Road

Table 6
Vertical Gradients in Wetlands - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Piezometer	Screen Interval		Screen	Separation	Groundwater Elevation			Hydraulic
Nest	Top	Bottom	Midpoint	(feet)	Upper	Lower	delta	Gradient
P64	629.05	624.10	626.58	5	627.97			
P65	622.20	620.20	621.20			628.05	0.08	0.016
P66	629.45	625.10	627.28	8	628.01			
P67	620.50	618.50	619.50			628.04	0.03	0.004
P68	628.15	623.80	625.98	6	630.68			
P69	621.10	618.60	619.85			630.71	0.03	0.005
P70	628.55	624.20	626.38	6	629.50			
P71	621.00	619.00	620.00			629.84	0.34	0.057

Notes:
(-) = Downward Gradient
(+) = Upward Gradient
Water Levels Collected on September 14, 1998.

Table 7
Vertical Gradients in Lower Aquifer - September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Well	Screen Interval		Separation	Lowest Measurable	Groundwater Elevation					Vertical Gradients			
Nest	Top	Bottom	(feet)	Gradient	Uppermost	Upper	Middle	Lower	delta	Uppermost/ Upper	Upper/ Middle	Middle/ Lower	Upper/ Lower
MW7	595.9	590.9			NA	620.76				NA			
PZ44	578.4	573.4	13	0.0008			NM	NA	NM		NM	NA	NM
MW8	598.2	593.2			NA	620.48				NA			
MW31	574.6	564.6	19	0.0005			620.49		0.01		WU		
MW32	547.3	537.3	17	0.0006				620.49	0			WU	WU
MW9R	605.9	600.9			NA	620.89				NA			
MW29	585.9	575.9	15	0.0007			620.89		0.00		NA		
MW34	552.8	542.8	23	0.0004				620.90	0.01			WU	NM
MW30	585.0	575.0			NA	NA	620.34			NA			
MW33	556.0	546.0	19	0.0005				620.33	-0.01		NA	WU	WU
MW28	588.7	578.7			NA	621.33				NA			
PZ42	568.5	563.5	10	0.0010			621.52		0.19		0.0186		
PZ43	554.5	549.5	9	0.0011				621.44	-0.08			-0.0089	0.0045
MW52	615.6	605.6			NA	620.46				NA			
MW53	555.7	545.7	50	0.0002			NA	620.43	-0.03		NA	NA	-0.0006
MW54R	NS	NS			NA	NS				NA			
MW55	547.6	537.6	NS	NM			NA	620.28	NM		NA	NA	NM

Notes:
Water levels collected on September 14, 1998.
Positive values indicate upward gradient. Negative values indicate downward gradient.
NA = Not Applicable. Calculating vertical gradient only for upper/lower interval at this location.
WU = Within Uncertainty of measurement technique.
NM = Not Measured.

APE/JMS/JJN
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Table 8
Vertical Gradients Between Upper and Lower Aquifers
September 1998
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Well Designation	Screen Interval		Screen Midpoint	Separation (feet)	Groundwater Elevation			Hydraulic Gradient
	Top	Bottom			Upper	Lower	delta	
P28	634.30	629.30	631.80	11	631.16			
MW8	598.20	593.20	595.70			620.48	-10.68	-0.97
P27	631.02	626.02	628.52	23	628.25			
MW9R	605.90	600.90	603.40			620.89	-7.36	-0.33
P8	635.36	630.36	632.86	18	632.37			
MW7	595.90	590.90	593.40			620.76	-11.61	-0.65

Notes:
Water levels collected on September 14, 1998.
(-) = Downward Gradient
(+) = Upward Gradient

Table 9
Summary of Organic Compound Detections in the Upper Aquifer
Validated Results
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Parameter	Monitoring Wells			
VOCs (ug/L)	MW48		MW49	
Chloroethane	610	DJ/	650	D/
1,2-Dichloroethene (total)	1	J/	5	J/
Benzene	7,800	D/	4,700	D/

Notes:

Data qualifers are defined in Appendix C

SVOC samples were not collected during the September 1998 sampling event.

_/_ = No data qualifier required

J/_ = Data qualifier added by laboratory

_/J = Data qualifier added by data validator

Table 10
Summary of Organic Compound Detections in the Lower Aquifer
Validated Results
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Parameter	Monitoring Well MW9R	
VOCs (ug/L)		
Vinyl Chloride	4	J/
Chloroethane	2,000	D/
Benzene	100	/
1,2-Dichloroethene (total)	1	J/
SVOCs (ug/L)		
No SVOCs detected		

Notes:

Data qualifiers are defined in Appendix C

_/_ = No data qualifier required

J/_ = Data qualifier added by laboratory

_/J = Data qualifier added by data validator

Table 11
Summmary of Inorganic Baseline Exceedances
September 1998 Groundwater Monitoring
American Chemical Services, Inc. NPL Site
Griffith, Indiana

Well	Potentially Statistically Significant Jun-98	Potentially Statistically Significant Sep-98	Arsenic		Total Number of EXCEEDANCES
			Sep-98	*Baseline*	
MW9R					0
MW48					0
MW49			46	*38*	1
Number of Exceedances			1		1

Notes:

1. Concentrations in ug/L.
2. See Appendix A for complete listing of inorganic analyses results.
3. Boxed numbers indicate that the inorganic species in the September 1998 results exceeded the maximum baseline concentration for that species by a factor of 2x or more.
4. Blank cells indicate that for the September 1998 sampling round, the inorganic specie did not exceed the baseline maximum.
5. Aluminum, antimony, barium, beryllium, cadmium, calcium, chromium (total), cobalt, copper, cyanide, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc are not included on this table because there were no September 1998 exceedences of the baseline for these species.

Table 12
Comparison of Private Well Detections to MCLs
September 1998
American Chemical Services NPL Site
Griffith, Indiana

	Sample Location and Concentration (ug/L)					
Analyte	PW-A	PW-B	PW-C	PW-D	PW-Y	MCL (ug/L)
Aluminum	--	--	--	--	--	NA
Antimony	--	--	--	--	--	6
Arsenic	--	--	--	--		50
Barium	109 B	124 B	153 B	144 B	133 B	2,000
Beryllium	--	--	--	--	--	4
Cadmium	--	--	--	--	--	5
Calcium	85,200	85,000	79,900	87,800	77,900	NA
Chromium	--	--	--	--	--	100
Cobalt	--	--	--	--	--	NA
Copper	3.8	--	--	--	--	1,300
Cyanide	--	--	--	--	--	200
Iron	3,180	3,180	2,440	2,330	2,890	NA
Lead	--	--	--	--	--	15
Magnesium	39,800	40,900	45,400	45,400	41,100	NA
Manganese	54.2 J	56.8 J	--	--	--	NA
Mercury	--	--	0.12 B	--	0.14 B	2
Nickel	--	--	--	--	--	NA
Potassium	--	--	--	--	--	NA
Selenium	--	--	--	--	--	50
Silver	--	--	--	--	--	NA
Sodium	14,100	13,400	22,400	18,500	18,900	NA
Thallium	--	--	--	--	--	2
Vanadium	--	--	--	--	--	NA
Zinc	139	--	--	--	--	NA

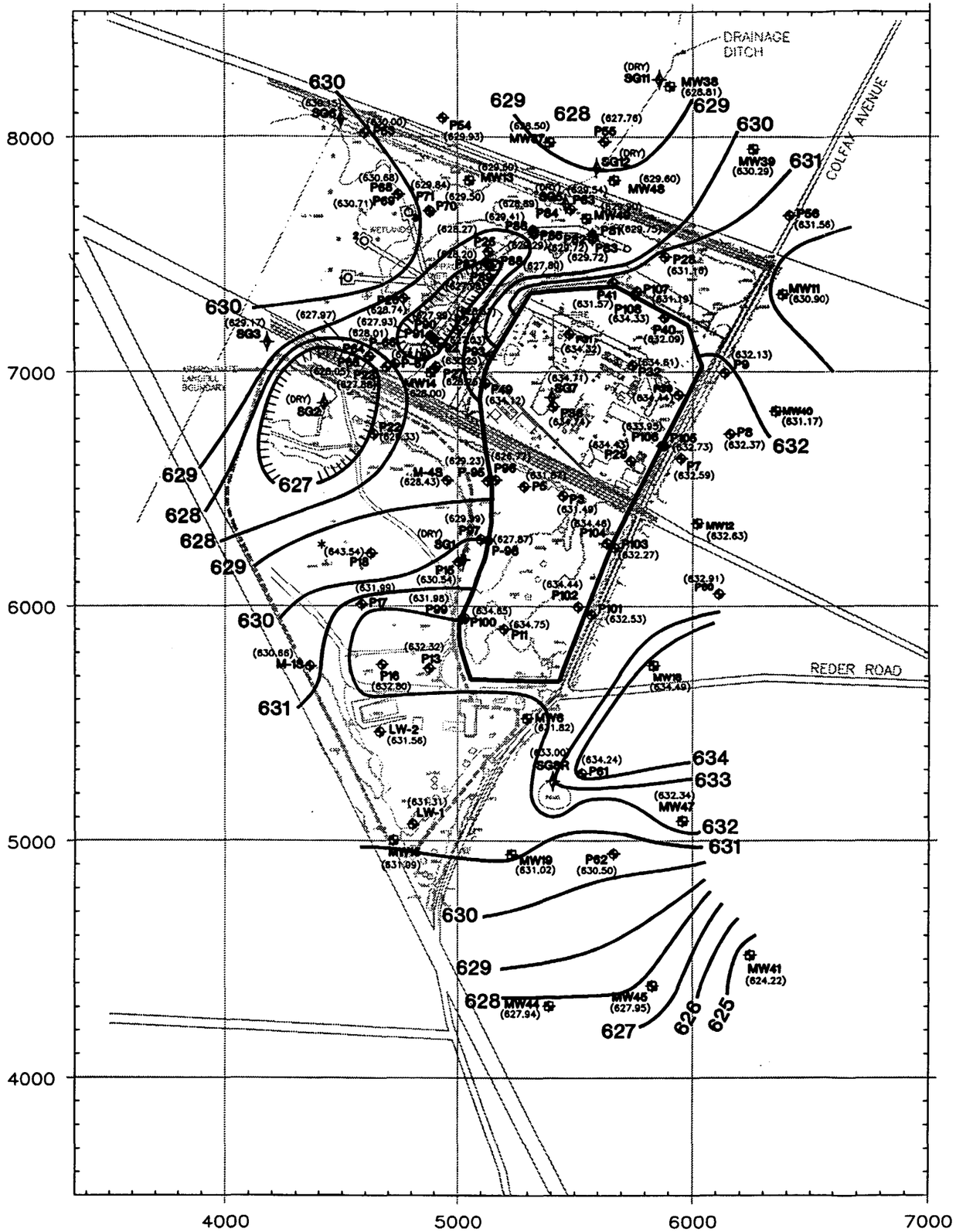
Notes:

-- = Analyte not detected
NA = MCL does not exist for this analyte
B = Analyte in blank
J = Estimated concentration

Table 13
Summary of Natural Attenuation Sample Results
September 1998
American Chemical Services, Inc. NPL Site
Griffith, Indiana

Analyte	Det. Limit (ug/L)	Results (ug/L)							
		MW18	MW19	MW38	MW39	MW40	MW41	MW45	MW48
Ammonia	50		41,700	301	3,310			1,350	7,170
Biological Oxygen Demand	2,000	22,000	2,100	5,500	3,100		2,100	18,000	19,000
Nitrate/Nitrite	500	4,770							
Nitrogen (Kjeldahl)	50	334	43,000	729	3,690	300	136	1,660	6,850
Organic Carbon (total)	2,000	3,100		10,000	2,900	1,400	1,500	5,400	11,000
Ortho-phosphate	50								
Sulfate	2,500	38,000	8,400	21,000	20,000	43,000	32,000		

Notes:
_/_ = No data qualifer required
J/_ = Data qualifer added by laboratory
_/J = Data qualifer added by data validator



LEGEND

- MW12 — UPPER AQUIFER WELL LOCATION AND DESIGNATION
- M-1S — LEACHATE WELL LOCATION AND DESIGNATION
- P61 — PIEZOMETER LOCATION AND DESIGNATION
- SG10 — STAFF GAUGE LOCATION AND DESIGNATION
- SD3 — SURFACE DISCHARGE LOCATION FOR PERIMETER GROUND WATER CONTAINMENT SYSTEM
- (632) — ELEVATION
- (632)* — ELEVATION MEASURED BUT NOT USED FOR DETERMINATION OF THE POTENTIOMETRIC SURFACE
- 630 —— GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA
- 630 - - - - GROUNDWATER ELEVATION CONTOUR BASED ON HYDROGEOLOGIC CONDITIONS
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY

NOTES

1. GROUNDWATER ELEVATIONS FOR WATER TABLE CONTOURS WERE MEASURED AT THE SITE ON SEPTEMBER 14, 1998.

north

0 500 1000

SCALE IN FEET

FIGURE 1

UPPER AQUIFER WATER TABLE ELEVATIONS - SEPTEMBER 1998

SEPTEMBER 14, 1998 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By JNN | Drawn By DKP
Approved By TAB | Date 12/23/98
Reference J:/1252/042/MWDWGS/SEPT98/UPPER_CONTOUR.dwg
Revisions

Drawing Number
1252042
221601

MONTGOMERY WATSON

Management Review
Other
Technical Review
Project Manager
Graphic Standards
Lead Professional
QUALITY CONTROL

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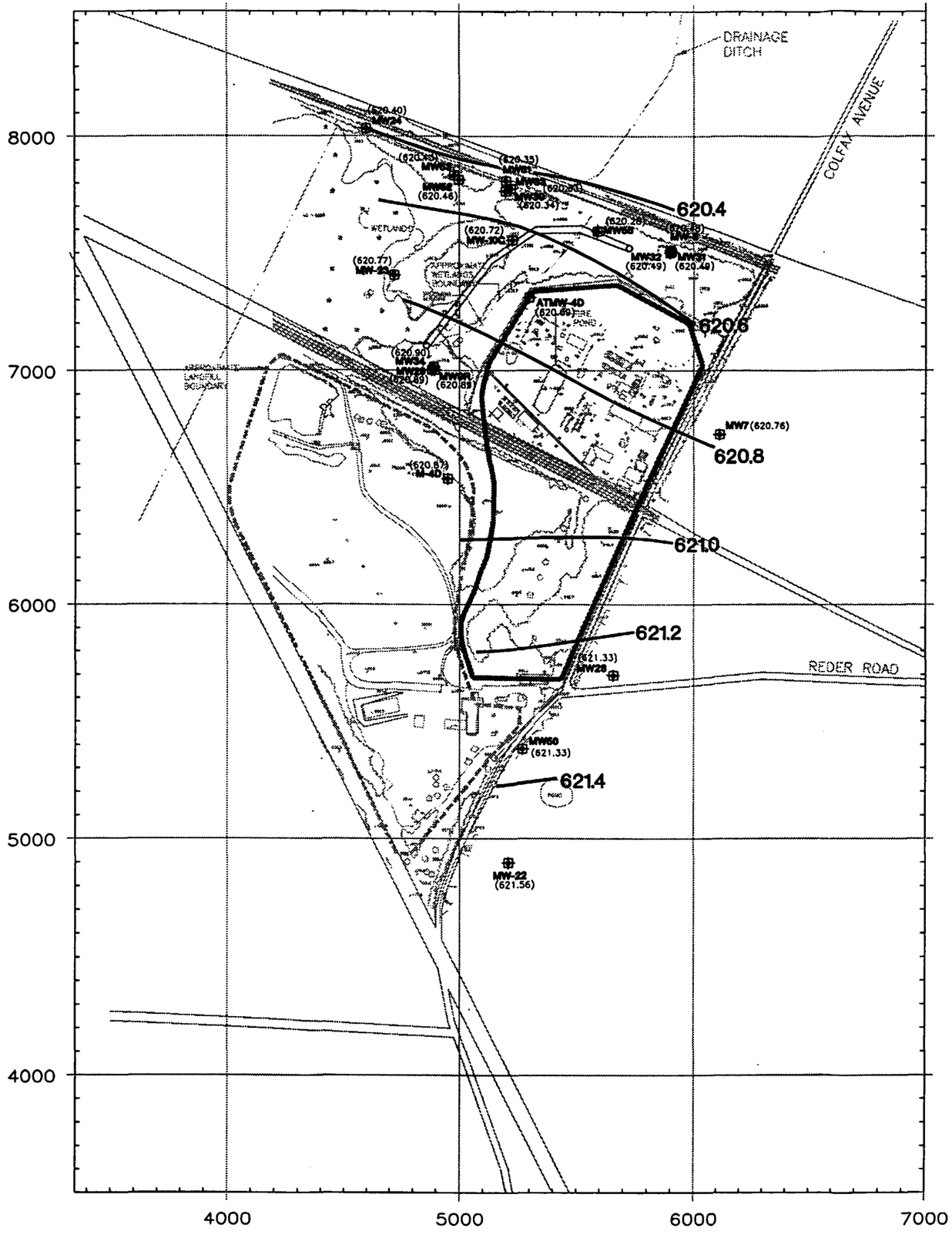

LEGEND

- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY
- MW63 — LOWER AQUIFER WELL LOCATION AND DESIGNATION
- (632) — ELEVATION
- 630 — GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA

NOTES

GROUNDWATER ELEVATIONS FOR WATER TABLE CONTOURS WERE MEASURED ON SEPTEMBER 14, 1998.

north

0 500 1000

SCALE IN FEET

FIGURE 2

Developed By TAB Drawn By DKP
Approved By TAB Date 12/23/98
Reference J:/1252/042/MWDWGS/SEPT98/LOWER_CONTOUR.dwg
Revisions

LOWER AQUIFER POTENTIOMETRIC SURFACE SEPTEMBER 14, 1998

SEPTEMBER 1998 GROUNDWATER SAMPLING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
221602

MONTGOMERY WATSON

Management Review
Other
Technical Review
Project Manager
Graphic Standards
Lead Professional
QUALITY CONTROL

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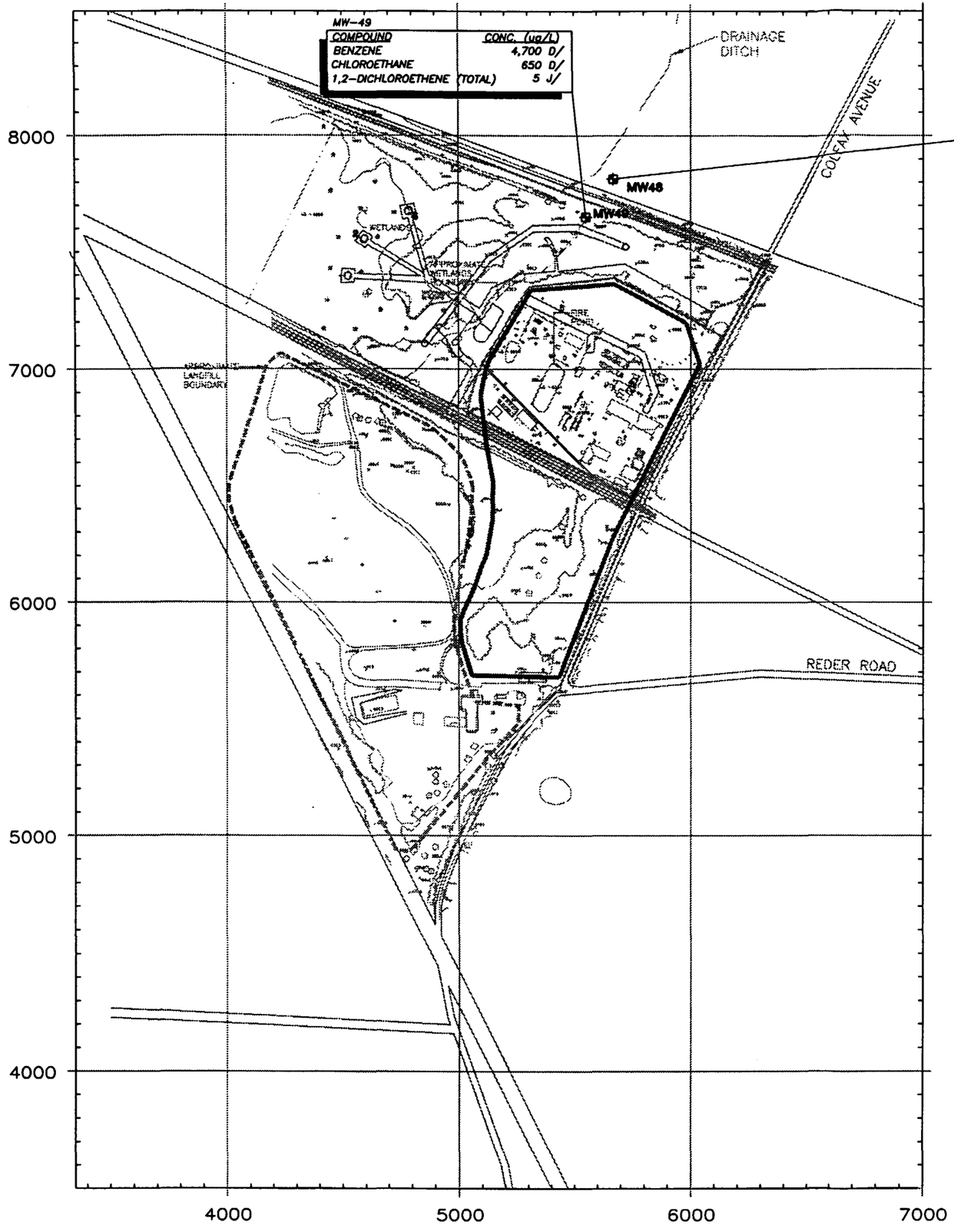

LEGEND

- MW48 — UPPER AQUIFER WELL LOCATION AND DESIGNATION
- SURFACE DISCHARGE LOCATION FOR PERIMETER GROUND WATER CONTAINMENT SYSTEM
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY
- J/ — DATA QUALIFIER ADDED BY LABORATORY
- /J — DATA QUALIFIER ADDED BY DATA VALIDATOR
- / — NO DATA QUALIFIER REQUIRED

north

0 500 1000

SCALE IN FEET

FIGURE 3

VOCs DETECTED IN UPPER AQUIFER MONITORING WELLS

SEPTEMBER 1998 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By APE Drawn By DKP
Approved By TAB Date 12/23/98
Reference J:/1252/042/MWDWGS/SEPT98/UPPER_SPIDY.dwg
Revisions

Drawing Number
1252042
221601

MONTGOMERY WATSON

Management Review
Other
Technical Review
Project Manager
Graphic Standards
Lead Professional
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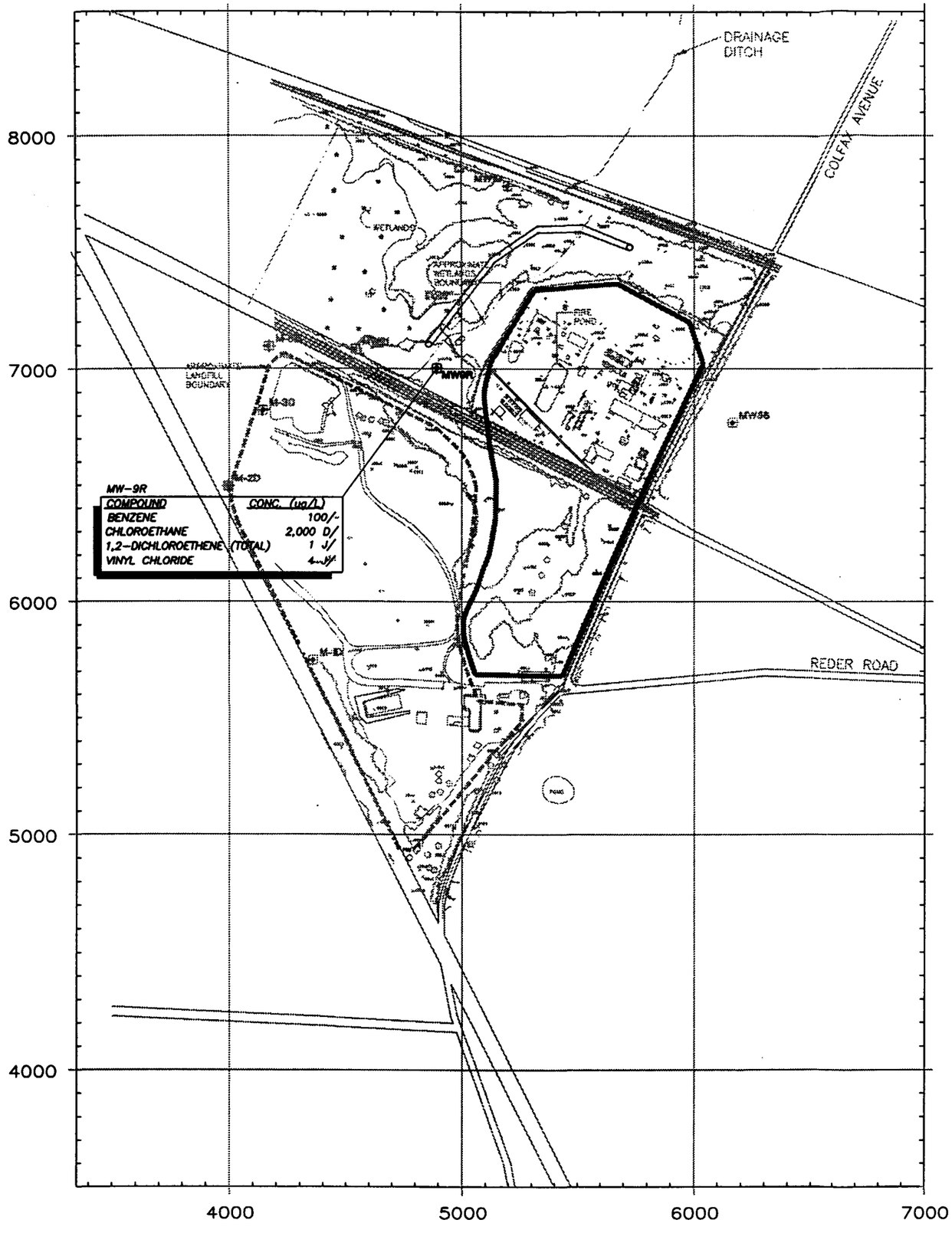

LEGEND

- $\oplus_{MW9R}$ LOWER AQUIFER WELL LOCATION AND DESIGNATION
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY
- J/ DATA QUALIFIER ADDED BY LABORATORY
- /J DATA QUALIFIER ADDED BY DATA VALIDATOR
- / NO DATA QUALIFIER REQUIRED

north

0 500 1000

SCALE IN FEET

FIGURE 4

VOCs DETECTED IN LOWER AQUIFER MONITORING WELLS

SEPTEMBER 1998 GROUNDWATER SAMPLING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
221601

MONTGOMERY WATSON

Developed By APE | Drawn By DKP
Approved By TAB | Date 12/23/98
Reference J:/1252/042/MWDWGS/SEPT98/LOWER_SPIDEY.dwg
Revisions

Management Review | Other
Technical Review | Project Manager
QUALITY CONTROL | Graphic Standards | Lead Professional

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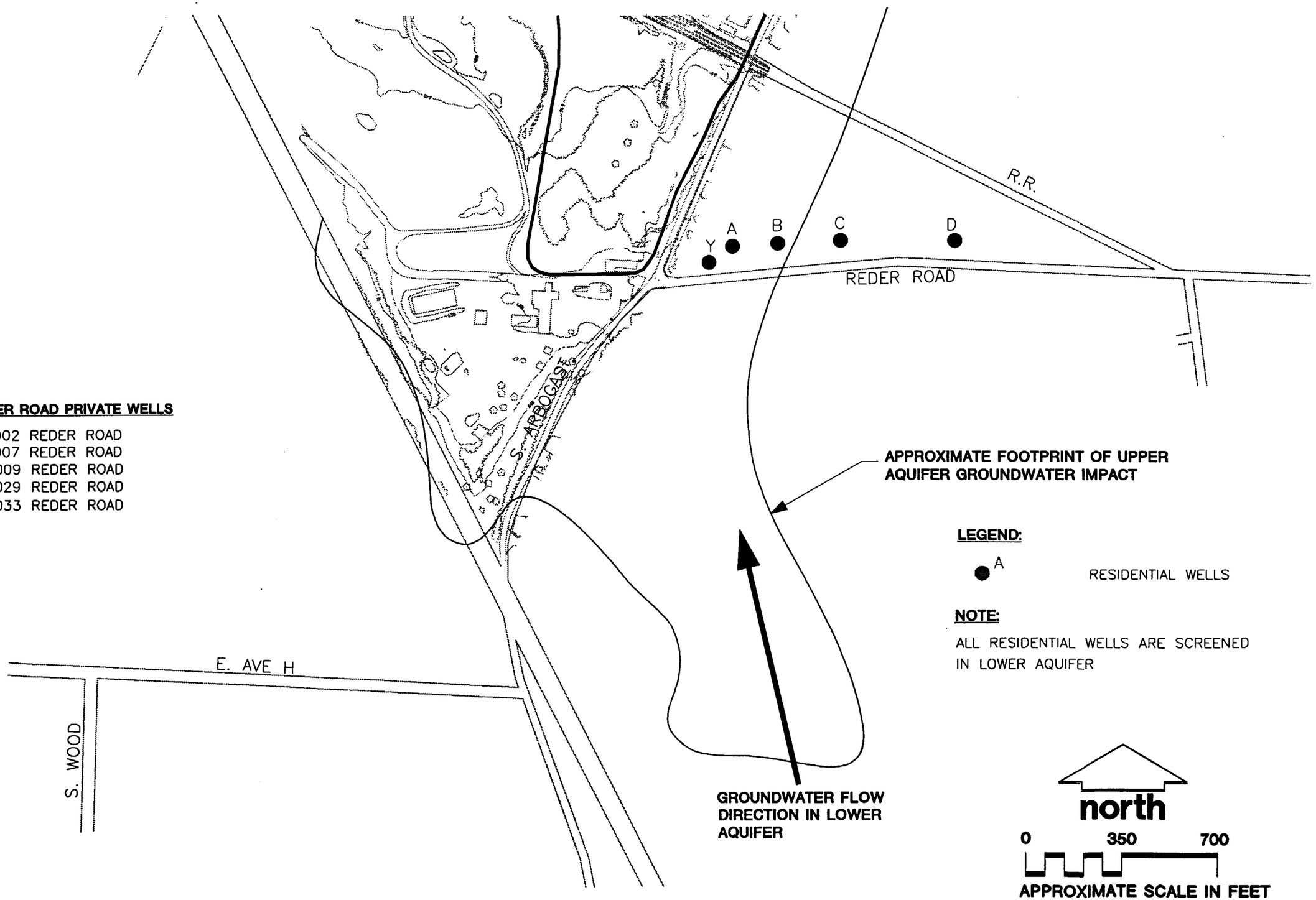

REDER ROAD PRIVATE WELLS

Y 1002 REDER ROAD
A 1007 REDER ROAD
B 1009 REDER ROAD
C 1029 REDER ROAD
D 1033 REDER ROAD

LEGEND:

A — RESIDENTIAL WELLS

NOTE:

ALL RESIDENTIAL WELLS ARE SCREENED IN LOWER AQUIFER

north

0 350 700

APPROXIMATE SCALE IN FEET

FIGURE 5

Technical Review / Project Manager
Management Review / Other
Graphic Standards / Lead Professional
QUALITY CONTROL

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Developed By TAB Drawn By DKP
Approved By TAB Date 12/23/98
Reference J:/1252/042/MWDWGS/RESID_WELL2.dwg
Revisions

RESIDENTIAL WELL LOCATIONS

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
221602

MONTGOMERY WATSON

A

APPENDIX A

Sept

COMPARISON OF JUNE 1998 RESULTS TO BASELINE MAXIMUM CONCENTRATIONS

VOCs

Comparison of Results to Baseline Highest Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
MW-09R	1,1,1-Trichloroethane	ug/L	200		U		10
MW-09R	1,1,2,2-Tetrachloroethane	ug/L	200		U		10
MW-09R	1,1,2-Trichloroethane	ug/L	200		U		10
MW-09R	1,1-Dichloroethane	ug/L	200		U		10
MW-09R	1,1-Dichloroethene	ug/L	200		U		10
MW-09R	1,2-Dichloroethane	ug/L	200		U		10
MW-09R	1,2-Dichloroethene (total)	ug/L	200	1	J		NA
MW-09R	1,2-Dichloropropane	ug/L	200		U		10
MW-09R	2-Butanone	ug/L	200		U		10
MW-09R	2-Hexanone	ug/L	200		U		10
MW-09R	4-Methyl-2-pentanone	ug/L	200		U		10
MW-09R	Acetone	ug/L	200		BJ	U	10
MW-09R	Benzene	ug/L	310	100			NA
MW-09R	Bromodichloromethane	ug/L	200		U		10
MW-09R	Bromoform	ug/L	200		U		10
MW-09R	Bromomethane	ug/L	200		U		10
MW-09R	Carbon disulfide	ug/L	200		U		10
MW-09R	Carbon Tetrachloride	ug/L	200		U		10
MW-09R	Chlorobenzene	ug/L	200		U		10
MW-09R	Chloroethane	ug/L	2,900	2,000	D		NA
MW-09R	Chloroform	ug/L	200		U		10
MW-09R	Chloromethane	ug/L	200		U		10
MW-09R	cis-1,3-Dichloropropene	ug/L	200		U		10
MW-09R	Dibromochloromethane	ug/L	200		U		10
MW-09R	Ethyl Benzene	ug/L	200		U		10
MW-09R	Methylene chloride	ug/L	200		BJ	U	10
MW-09R	Styrene	ug/L	200		U		10
MW-09R	Tetrachloroethene	ug/L	200		U		10
MW-09R	Toluene	ug/L	200		U		10
MW-09R	trans-1,3-Dichloropropene	ug/L	200		U		10
MW-09R	Trichloroethene	ug/L	200		U		10
MW-09R	Vinyl chloride	ug/L	200	4	J		NA
MW-09R	Xylenes (total)	ug/L	200		U		10
MW-48	1,1,1-Trichloroethane	ug/L	500		U		10
MW-48	1,1,2-Trichloroethane	ug/L	500		U		10
MW-48	1,1-Dichloroethene	ug/L	500		U		10
MW-48	1,2-Dichloroethane	ug/L	500		U		10
MW-48	1,2-Dichloroethene (total)	ug/L	500	1	J		NA
MW-48	Benzene	ug/L	9,500	7,800	D		NA
MW-48	Chloroethane	ug/L	1,000	610	DJ		NA
MW-48	Tetrachloroethene	ug/L	500		U		10
MW-48	Trichloroethene	ug/L	500		U		10
MW-48	Vinyl chloride	ug/L	500		U		10
MW-49	1,1,1-Trichloroethane	ug/L	500		U		10
MW-49	1,1,2-Trichloroethane	ug/L	500		U		10
MW-49	1,1-Dichloroethene	ug/L	500		U		10

BOLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Results to Baseline Highest Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
MW-49	1,2-Dichloroethane	ug/L	500		U		10
MW-49	1,2-Dichloroethene (total)	ug/L	500	5	J		NA
MW-49	Benzene	ug/L	6,750	4,700	D		NA
MW-49	Chloroethane	ug/L	715	650	D		NA
MW-49	Tetrachloroethene	ug/L	500		U		10
MW-49	Trichloroethene	ug/L	500		U		10
MW-49	Vinyl chloride	ug/L	500		U		10

= Exceedance

NA = Not Applicable

AHS/JJN/ahs
J:\1252\042\Databases\1998\ACS GW.mdb\rptNewResultsVOC
1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-A	1,1,1-Trichloroethane	ug/L	1.0		U		10
PW-A	1,1,2,2-Tetrachloroethane	ug/L	1.0		U		10
PW-A	1,1,2-Trichloroethane	ug/L	1.0		U		10
PW-A	1,1-Dichloroethane	ug/L	1.0		U		10
PW-A	1,1-Dichloroethene	ug/L	1.0		U		10
PW-A	1,2-Dichloroethane	ug/L	1.0		U		10
PW-A	1,2-Dichloroethene (total)	ug/L	NA		U		10
PW-A	1,2-Dichloropropane	ug/L	1.0		U		10
PW-A	2-Butanone	ug/L	5.0		U		10
PW-A	2-Hexanone	ug/L	5.0		U		10
PW-A	4-Methyl-2-pentanone	ug/L	5.0		U		10
PW-A	Acetone	ug/L	10		U		10
PW-A	Benzene	ug/L	1.0		J	U	10
PW-A	Bromodichloromethane	ug/L	1.0		U		10
PW-A	Bromoform	ug/L	1.0		U		10
PW-A	Bromomethane	ug/L	1.0		U		10
PW-A	Carbon disulfide	ug/L	1.0		U		10
PW-A	Carbon Tetrachloride	ug/L	1.0		U		10
PW-A	Chlorobenzene	ug/L	1.0		U		10
PW-A	Chloroethane	ug/L	1.0		U		10
PW-A	Chloroform	ug/L	1.0		U		10
PW-A	Chloromethane	ug/L	1.0		U		10
PW-A	cis-1,3-Dichloropropene	ug/L	1.0		U		10
PW-A	Dibromochloromethane	ug/L	1.0		U		10
PW-A	Ethyl Benzene	ug/L	1.0		U		10
PW-A	Methylene chloride	ug/L	1.0		U		10
PW-A	Styrene	ug/L	1.0		U		10
PW-A	Tetrachloroethene	ug/L	1.0		U		10
PW-A	Toluene	ug/L	1.0		U		10
PW-A	trans-1,3-Dichloropropene	ug/L	1.0		U		10
PW-A	Trichloroethene	ug/L	1.0		U		10
PW-A	Vinyl chloride	ug/L	1.0		U		10
PW-A	Xylenes (total)	ug/L	5.0		U		10
PW-B	1,1,1-Trichloroethane	ug/L	1.0		U		10
PW-B	1,1,2,2-Tetrachloroethane	ug/L	1.0		U		10
PW-B	1,1,2-Trichloroethane	ug/L	1.0		U		10
PW-B	1,1-Dichloroethane	ug/L	1.0		U		10
PW-B	1,1-Dichloroethene	ug/L	1.0		U		10
PW-B	1,2-Dichloroethane	ug/L	1.0		U		10
PW-B	1,2-Dichloroethene (total)	ug/L	NA		U		10
PW-B	1,2-Dichloropropane	ug/L	1.0		U		10
PW-B	2-Butanone	ug/L	5.0		U		10
PW-B	2-Hexanone	ug/L	5.0		U		10
PW-B	4-Methyl-2-pentanone	ug/L	5.0		U		10
PW-B	Acetone	ug/L	5.0		U		10
PW-B	Benzene	ug/L	1.0		J	U	10

BOLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-B	Bromodichloromethane	ug/L	1.0		U		10
PW-B	Bromoform	ug/L	1.0		U		10
PW-B	Bromomethane	ug/L	1.0		U		10
PW-B	Carbon disulfide	ug/L	1.0		U		10
PW-B	Carbon Tetrachloride	ug/L	1.0		U		10
PW-B	Chlorobenzene	ug/L	1.0		U		10
PW-B	Chloroethane	ug/L	1.0		U		10
PW-B	Chloroform	ug/L	1.0		U		10
PW-B	Chloromethane	ug/L	1.0		U		10
PW-B	cis-1,3-Dichloropropene	ug/L	1.0		U		10
PW-B	Dibromochloromethane	ug/L	1.0		U		10
PW-B	Ethyl Benzene	ug/L	1.0		U		10
PW-B	Methylene chloride	ug/L	1.0		U		10
PW-B	Styrene	ug/L	1.0		U		10
PW-B	Tetrachloroethene	ug/L	1.0		U		10
PW-B	Toluene	ug/L	1.0		U		10
PW-B	trans-1,3-Dichloropropene	ug/L	1.0		U		10
PW-B	Trichloroethene	ug/L	1.0		U		10
PW-B	Vinyl chloride	ug/L	1.0		U		10
PW-B	Xylenes (total)	ug/L	5.0		U		10
PW-C	1,1,1-Trichloroethane	ug/L	1.0		U		10
PW-C	1,1,2,2-Tetrachloroethane	ug/L	1.0		U		10
PW-C	1,1,2-Trichloroethane	ug/L	1.0		U		10
PW-C	1,1-Dichloroethane	ug/L	1.0		U		10
PW-C	1,1-Dichloroethene	ug/L	1.0		U		10
PW-C	1,2-Dichloroethane	ug/L	1.0		U		10
PW-C	1,2-Dichloroethene (total)	ug/L	NA		U		10
PW-C	1,2-Dichloropropane	ug/L	1.0		U		10
PW-C	2-Butanone	ug/L	5.0		U		10
PW-C	2-Hexanone	ug/L	5.0		U		10
PW-C	4-Methyl-2-pentanone	ug/L	5.0		U		10
PW-C	Acetone	ug/L	5.0		BJ	U	10
PW-C	Benzene	ug/L	1.0		U		10
PW-C	Bromodichloromethane	ug/L	1.0		U		10
PW-C	Bromoform	ug/L	1.0		U		10
PW-C	Bromomethane	ug/L	1.0		U		10
PW-C	Carbon disulfide	ug/L	1.0		U		10
PW-C	Carbon Tetrachloride	ug/L	1.0		U		10
PW-C	Chlorobenzene	ug/L	1.0		U		10
PW-C	Chloroethane	ug/L	1.0		U		10
PW-C	Chloroform	ug/L	1.0		U		10
PW-C	Chloromethane	ug/L	1.0		U		10
PW-C	cis-1,3-Dichloropropene	ug/L	1.0		U		10
PW-C	Dibromochloromethane	ug/L	1.0		U		10
PW-C	Ethyl Benzene	ug/L	1.0		U		10
PW-C	Methylene chloride	ug/L	1.0		BJ	U	10

EXCEED = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-C	Styrene	ug/L	1.0		U		10
PW-C	Tetrachloroethene	ug/L	1.0		U		10
PW-C	Toluene	ug/L	1.0		U		10
PW-C	trans-1,3-Dichloropropene	ug/L	1.0		U		10
PW-C	Trichloroethene	ug/L	1.0		U		10
PW-C	Vinyl chloride	ug/L	1.0		U		10
PW-C	Xylenes (total)	ug/L	5.0		U		10
PW-D	1,1,1-Trichloroethane	ug/L	1.0		U		10
PW-D	1,1,2,2-Tetrachloroethane	ug/L	1.0		U		10
PW-D	1,1,2-Trichloroethane	ug/L	1.0		U		10
PW-D	1,1-Dichloroethane	ug/L	1.0		U		10
PW-D	1,1-Dichloroethene	ug/L	1.0		U		10
PW-D	1,2-Dichloroethane	ug/L	1.0		U		10
PW-D	1,2-Dichloroethene (total)	ug/L	NA		U		10
PW-D	1,2-Dichloropropane	ug/L	1.0		U		10
PW-D	2-Butanone	ug/L	5.0		U		10
PW-D	2-Hexanone	ug/L	5.0		U		10
PW-D	4-Methyl-2-pentanone	ug/L	5.0		U		10
PW-D	Acetone	ug/L	5.0		U		10
PW-D	Benzene	ug/L	1.0		J	U	10
PW-D	Bromodichloromethane	ug/L	1.0		U		10
PW-D	Bromoform	ug/L	1.0		U		10
PW-D	Bromomethane	ug/L	1.0		U		10
PW-D	Carbon disulfide	ug/L	1.0		U		10
PW-D	Carbon Tetrachloride	ug/L	1.0		U		10
PW-D	Chlorobenzene	ug/L	1.0		U		10
PW-D	Chloroethane	ug/L	1.0		U		10
PW-D	Chloroform	ug/L	1.0		U		10
PW-D	Chloromethane	ug/L	1.0		U		10
PW-D	cis-1,3-Dichloropropene	ug/L	1.0		U		10
PW-D	Dibromochloromethane	ug/L	1.0		U		10
PW-D	Ethyl Benzene	ug/L	1.0		U		10
PW-D	Methylene chloride	ug/L	2.0		U		10
PW-D	Styrene	ug/L	1.0		U		10
PW-D	Tetrachloroethene	ug/L	1.0		U		10
PW-D	Toluene	ug/L	1.0		U		10
PW-D	trans-1,3-Dichloropropene	ug/L	1.0		U		10
PW-D	Trichloroethene	ug/L	1.0		U		10
PW-D	Vinyl chloride	ug/L	1.0		U		10
PW-D	Xylenes (total)	ug/L	5.0		U		10

= Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

SVOCs

Comparison of Results to Baseline Highest Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
MW-09R	1,2,4-Trichlorobenzene	ug/L	50		U		10
MW-09R	1,2-Dichlorobenzene	ug/L	50		U		10
MW-09R	1,3-Dichlorobenzene	ug/L	50		U		10
MW-09R	1,4-Dichlorobenzene	ug/L	50		U		10
MW-09R	2,2'-oxybis(1-Chloropropane)	ug/L	50		U		10
MW-09R	2,4,5-Trichlorophenol	ug/L	125		U		25
MW-09R	2,4,6-Trichlorophenol	ug/L	50		U		10
MW-09R	2,4-Dichlorophenol	ug/L	50		U		10
MW-09R	2,4-Dimethylphenol	ug/L	50		U		10
MW-09R	2,4-Dinitrophenol	ug/L	125		U		25
MW-09R	2,4-Dinitrotoluene	ug/L	50		U		10
MW-09R	2,6-Dinitrotoluene	ug/L	50		U		10
MW-09R	2-Chloronaphthalene	ug/L	50		U		10
MW-09R	2-Chlorophenol	ug/L	50		U		10
MW-09R	2-Methylnaphthalene	ug/L	50		U		10
MW-09R	2-Methylphenol	ug/L	50		U		10
MW-09R	2-Nitroaniline	ug/L	125		U		25
MW-09R	2-Nitrophenol	ug/L	50		U		10
MW-09R	3,3'-Dichlorobenzidine	ug/L	50		U		10
MW-09R	3-Nitroaniline	ug/L	125		U		25
MW-09R	4,6-Dinitro-2-methylphenol	ug/L	125		U		25
MW-09R	4-Bromophenyl-phenylether	ug/L	50		U		10
MW-09R	4-Chloro-3-methylphenol	ug/L	50		U		10
MW-09R	4-Chloroaniline	ug/L	50		U		10
MW-09R	4-Chlorophenyl-phenyl ether	ug/L	50		U		10
MW-09R	4-Methylphenol	ug/L	50		U		10
MW-09R	4-Nitroaniline	ug/L	125		U		25
MW-09R	4-Nitrophenol	ug/L	125		U		25
MW-09R	Acenaphthene	ug/L	50		U		10
MW-09R	Acenaphthylene	ug/L	50		U		10
MW-09R	Anthracene	ug/L	50		U		10
MW-09R	Benzo(a)anthracene	ug/L	50		U		10
MW-09R	Benzo(a)pyrene	ug/L	50		U		10
MW-09R	Benzo(b)fluoranthene	ug/L	50		U		10
MW-09R	Benzo(g,h,i)perylene	ug/L	50		U		10
MW-09R	Benzo(k)fluoranthene	ug/L	50		U		10
MW-09R	Bis(2-chloroethoxy)methane	ug/L	50		U		10
MW-09R	bis(2-chloroethyl) ether	ug/L	50		U		10
MW-09R	Bis(2-ethylhexyl)phthalate	ug/L	50		BJ	U	10
MW-09R	Butylbenzylphthalate	ug/L	50		J	U	10
MW-09R	Carbazole	ug/L	50		U		10
MW-09R	Chrysene	ug/L	50		U		10
MW-09R	Di-n-butylphthalate	ug/L	50		J	U	10
MW-09R	Di-n-octylphthalate	ug/L	50		U		10
MW-09R	Dibenzo(a,h)anthracene	ug/L	50		U		10
MW-09R	Dibenzofuran	ug/L	50		U		10

BOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Results to Baseline Highest Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
MW-09R	Diethylphthalate	ug/L	50		U		10
MW-09R	Dimethylphthalate	ug/L	50		U		10
MW-09R	Fluoranthene	ug/L	50		U		10
MW-09R	Fluorene	ug/L	50		U		10
MW-09R	Hexachlorobenzene	ug/L	50		U		10
MW-09R	Hexachlorobutadiene	ug/L	50		U		10
MW-09R	Hexachlorocyclopentadiene	ug/L	50		U		10
MW-09R	Hexachloroethane	ug/L	50		U		10
MW-09R	Indeno(1,2,3-cd)pyrene	ug/L	50		U		10
MW-09R	Isophorone	ug/L	50		U		10
MW-09R	N-Nitroso-di-n-propylamine	ug/L	50		U		10
MW-09R	N-Nitrosodiphenylamine	ug/L	50		U		10
MW-09R	Naphthalene	ug/L	50		U		10
MW-09R	Nitrobenzene	ug/L	50		U		10
MW-09R	Pentachlorophenol	ug/L	125		U		25
MW-09R	Phenanthrene	ug/L	50		U		10
MW-09R	Phenol	ug/L	50		U		10
MW-09R	Pyrene	ug/L	50		U		10

BOLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-A	1,2,4-Trichlorobenzene	ug/L	5.0		U		10
PW-A	1,2-Dichlorobenzene	ug/L	1.0		U		10
PW-A	1,3-Dichlorobenzene	ug/L	1.0		U		10
PW-A	1,4-Dichlorobenzene	ug/L	1.0		U		10
PW-A	2,2'-oxybis(1-Chloropropane)	ug/L	5.0		U		10
PW-A	2,4,5-Trichlorophenol	ug/L	20		U		25
PW-A	2,4,6-Trichlorophenol	ug/L	5.0		U		10
PW-A	2,4-Dichlorophenol	ug/L	5.0		U		10
PW-A	2,4-Dimethylphenol	ug/L	5.0		U		10
PW-A	2,4-Dinitrophenol	ug/L	20		U		25
PW-A	2,4-Dinitrotoluene	ug/L	5.0		U		10
PW-A	2,6-Dinitrotoluene	ug/L	5.0		U		10
PW-A	2-Chloronaphthalene	ug/L	5.0		U		10
PW-A	2-Chlorophenol	ug/L	5.0		U		10
PW-A	2-Methylnaphthalene	ug/L	5.0		U		10
PW-A	2-Methylphenol	ug/L	5.0		U		10
PW-A	2-Nitroaniline	ug/L	20		U		25
PW-A	2-Nitrophenol	ug/L	5.0		U		10
PW-A	3,3'-Dichlorobenzidine	ug/L	5.0		U		10
PW-A	3-Nitroaniline	ug/L	20		U		25
PW-A	4,6-Dinitro-2-methylphenol	ug/L	20		U		25
PW-A	4-Bromophenyl-phenylether	ug/L	5.0		U		10
PW-A	4-Chloro-3-methylphenol	ug/L	5.0		U		10
PW-A	4-Chloroaniline	ug/L	5.0		U		10
PW-A	4-Chlorophenyl-phenyl ether	ug/L	5.0		U		10
PW-A	4-Methylphenol	ug/L	5.0		U		10
PW-A	4-Nitroaniline	ug/L	20		U		25
PW-A	4-Nitrophenol	ug/L	20		U		25
PW-A	Acenaphthene	ug/L	5.0		U		10
PW-A	Acenaphthylene	ug/L	5.0		U		10
PW-A	Anthracene	ug/L	5.0		U		10
PW-A	Benzo(a)anthracene	ug/L	5.0		U		10
PW-A	Benzo(a)pyrene	ug/L	5.0		U		10
PW-A	Benzo(b)fluoranthene	ug/L	5.0		U		10
PW-A	Benzo(g,h,i)perylene	ug/L	5.0		U		10
PW-A	Benzo(k)fluoranthene	ug/L	5.0		U		10
PW-A	Bis(2-chloroethoxy)methane	ug/L	5.0		U		10
PW-A	bis(2-chloroethyl) ether	ug/L	5.0		U		10
PW-A	Bis(2-ethylhexyl)phthalate	ug/L	5.0		BJ	U	10
PW-A	Butylbenzylphthalate	ug/L	5.0		J	U	10
PW-A	Carbazole	ug/L	NA		U		10
PW-A	Chrysene	ug/L	5.0		U		10
PW-A	Di-n-butylphthalate	ug/L	5.0		J	U	10
PW-A	Di-n-octylphthalate	ug/L	5.0		U		10
PW-A	Dibenzo(a,h)anthracene	ug/L	5.0		U		10
PW-A	Dibenzofuran	ug/L	5.0		U		10

HOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-A	Diethylphthalate	ug/L	5.0		U		10
PW-A	Dimethylphthalate	ug/L	5.0		U		10
PW-A	Fluoranthene	ug/L	5.0		U		10
PW-A	Fluorene	ug/L	5.0		U		10
PW-A	Hexachlorobenzene	ug/L	5.0		U		10
PW-A	Hexachlorobutadiene	ug/L	5.0		U		10
PW-A	Hexachlorocyclopentadiene	ug/L	5.0		U		10
PW-A	Hexachloroethane	ug/L	5.0		U		10
PW-A	Indeno(1,2,3-cd)pyrene	ug/L	5.0		U		10
PW-A	Isophorone	ug/L	5.0		U		10
PW-A	N-Nitroso-di-n-propylamine	ug/L	5.0		U		10
PW-A	N-Nitrosodiphenylamine	ug/L	5.0		U		10
PW-A	Naphthalene	ug/L	5.0		U		10
PW-A	Nitrobenzene	ug/L	5.0		U		10
PW-A	Pentachlorophenol	ug/L	20		U		25
PW-A	Phenanthrene	ug/L	5.0		U		10
PW-A	Phenol	ug/L	5.0		U		10
PW-A	Pyrene	ug/L	5.0		U		10
PW-B	1,2,4-Trichlorobenzene	ug/L	5.0		U		10
PW-B	1,2-Dichlorobenzene	ug/L	1.0		U		10
PW-B	1,3-Dichlorobenzene	ug/L	1.0		U		10
PW-B	1,4-Dichlorobenzene	ug/L	1.0		U		10
PW-B	2,2'-oxybis(1-Chloropropane)	ug/L	5.0		U		10
PW-B	2,4,5-Trichlorophenol	ug/L	20		U		25
PW-B	2,4,6-Trichlorophenol	ug/L	5.0		U		10
PW-B	2,4-Dichlorophenol	ug/L	5.0		U		10
PW-B	2,4-Dimethylphenol	ug/L	5.0		U		10
PW-B	2,4-Dinitrophenol	ug/L	20		U		25
PW-B	2,4-Dinitrotoluene	ug/L	5.0		U		10
PW-B	2,6-Dinitrotoluene	ug/L	5.0		U		10
PW-B	2-Chloronaphthalene	ug/L	5.0		U		10
PW-B	2-Chlorophenol	ug/L	5.0		U		10
PW-B	2-Methylnaphthalene	ug/L	5.0		U		10
PW-B	2-Methylphenol	ug/L	5.0		U		10
PW-B	2-Nitroaniline	ug/L	20		U		25
PW-B	2-Nitrophenol	ug/L	5.0		U		10
PW-B	3,3'-Dichlorobenzidine	ug/L	5.0		U		10
PW-B	3-Nitroaniline	ug/L	20		U		25
PW-B	4,6-Dinitro-2-methylphenol	ug/L	20		U		25
PW-B	4-Bromophenyl-phenylether	ug/L	5.0		U		10
PW-B	4-Chloro-3-methylphenol	ug/L	5.0		U		10
PW-B	4-Chloroaniline	ug/L	5.0		U		10
PW-B	4-Chlorophenyl-phenyl ether	ug/L	5.0		U		10
PW-B	4-Methylphenol	ug/L	5.0		U		10
PW-B	4-Nitroaniline	ug/L	20		U		25
PW-B	4-Nitrophenol	ug/L	20		U		25

BOLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-B	Acenaphthene	ug/L	5.0		U		10
PW-B	Acenaphthylene	ug/L	5.0		U		10
PW-B	Anthracene	ug/L	5.0		U		10
PW-B	Benzo(a)anthracene	ug/L	5.0		U		10
PW-B	Benzo(a)pyrene	ug/L	5.0		U		10
PW-B	Benzo(b)fluoranthene	ug/L	5.0		U		10
PW-B	Benzo(g,h,i)perylene	ug/L	5.0		U		10
PW-B	Benzo(k)fluoranthene	ug/L	5.0		U		10
PW-B	Bis(2-chloroethoxy)methane	ug/L	5.0		U		10
PW-B	bis(2-chloroethyl) ether	ug/L	5.0		U		10
PW-B	Bis(2-ethylhexyl)phthalate	ug/L	5.0		U		10
PW-B	Butylbenzylphthalate	ug/L	5.0		U		10
PW-B	Carbazole	ug/L	NA		U		10
PW-B	Chrysene	ug/L	5.0		U		10
PW-B	Di-n-butylphthalate	ug/L	5.0		U		10
PW-B	Di-n-octylphthalate	ug/L	5.0		U		10
PW-B	Dibenzo(a,h)anthracene	ug/L	5.0		U		10
PW-B	Dibenzofuran	ug/L	5.0		U		10
PW-B	Diethylphthalate	ug/L	5.0		U		10
PW-B	Dimethylphthalate	ug/L	5.0		U		10
PW-B	Fluoranthene	ug/L	5.0		U		10
PW-B	Fluorene	ug/L	5.0		U		10
PW-B	Hexachlorobenzene	ug/L	5.0		U		10
PW-B	Hexachlorobutadiene	ug/L	5.0		U		10
PW-B	Hexachlorocyclopentadiene	ug/L	5.0		U		10
PW-B	Hexachloroethane	ug/L	5.0		U		10
PW-B	Indeno(1,2,3-cd)pyrene	ug/L	5.0		U		10
PW-B	Isophorone	ug/L	5.0		U		10
PW-B	N-Nitroso-di-n-propylamine	ug/L	5.0		U		10
PW-B	N-Nitrosodiphenylamine	ug/L	5.0		U		10
PW-B	Naphthalene	ug/L	5.0		U		10
PW-B	Nitrobenzene	ug/L	5.0		U		10
PW-B	Pentachlorophenol	ug/L	20		U		25
PW-B	Phenanthrene	ug/L	5.0		U		10
PW-B	Phenol	ug/L	5.0		U		10
PW-B	Pyrene	ug/L	5.0		U		10
PW-C	1,2,4-Trichlorobenzene	ug/L	5.0		U		10
PW-C	1,2-Dichlorobenzene	ug/L	1.0		U		10
PW-C	1,3-Dichlorobenzene	ug/L	1.0		U		10
PW-C	1,4-Dichlorobenzene	ug/L	1.0		U		10
PW-C	2,2'-oxybis(1-Chloropropane)	ug/L	5.0		U		10
PW-C	2,4,5-Trichlorophenol	ug/L	20		U		25
PW-C	2,4,6-Trichlorophenol	ug/L	5.0		U		10
PW-C	2,4-Dichlorophenol	ug/L	5.0		U		10
PW-C	2,4-Dimethylphenol	ug/L	5.0		U		10
PW-C	2,4-Dinitrophenol	ug/L	20		U		25

BOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-C	2,4-Dinitrotoluene	ug/L	5.0		U		10
PW-C	2,6-Dinitrotoluene	ug/L	5.0		U		10
PW-C	2-Chloronaphthalene	ug/L	5.0		U		10
PW-C	2-Chlorophenol	ug/L	5.0		U		10
PW-C	2-Methylnaphthalene	ug/L	5.0		U		10
PW-C	2-Methylphenol	ug/L	5.0		U		10
PW-C	2-Nitroaniline	ug/L	20		U		25
PW-C	2-Nitrophenol	ug/L	5.0		U		10
PW-C	3,3'-Dichlorobenzidine	ug/L	5.0		U		10
PW-C	3-Nitroaniline	ug/L	20		U		25
PW-C	4,6-Dinitro-2-methylphenol	ug/L	20		U		25
PW-C	4-Bromophenyl-phenylether	ug/L	5.0		U		10
PW-C	4-Chloro-3-methylphenol	ug/L	5.0		U		10
PW-C	4-Chloroaniline	ug/L	5.0		U		10
PW-C	4-Chlorophenyl-phenyl ether	ug/L	5.0		U		10
PW-C	4-Methylphenol	ug/L	5.0		U		10
PW-C	4-Nitroaniline	ug/L	20		U		25
PW-C	4-Nitrophenol	ug/L	20		U		25
PW-C	Acenaphthene	ug/L	5.0		U		10
PW-C	Acenaphthylene	ug/L	5.0		U		10
PW-C	Anthracene	ug/L	5.0		U		10
PW-C	Benzo(a)anthracene	ug/L	5.0		U		10
PW-C	Benzo(a)pyrene	ug/L	5.0		U		10
PW-C	Benzo(b)fluoranthene	ug/L	5.0		U		10
PW-C	Benzo(g,h,i)perylene	ug/L	5.0		U		10
PW-C	Benzo(k)fluoranthene	ug/L	5.0		U		10
PW-C	Bis(2-chloroethoxy)methane	ug/L	5.0		U		10
PW-C	bis(2-chloroethyl) ether	ug/L	5.0		U		10
PW-C	Bis(2-ethylhexyl)phthalate	ug/L	5.0		BJ	U	10
PW-C	Butylbenzylphthalate	ug/L	5.0		J	U	10
PW-C	Carbazole	ug/L	NA		U		10
PW-C	Chrysene	ug/L	5.0		U		10
PW-C	Di-n-butylphthalate	ug/L	5.0		J	U	10
PW-C	Di-n-octylphthalate	ug/L	5.0		U		10
PW-C	Dibenzo(a,h)anthracene	ug/L	5.0		U		10
PW-C	Dibenzofuran	ug/L	5.0		U		10
PW-C	Diethylphthalate	ug/L	5.0		U		10
PW-C	Dimethylphthalate	ug/L	5.0		U		10
PW-C	Fluoranthene	ug/L	5.0		U		10
PW-C	Fluorene	ug/L	5.0		U		10
PW-C	Hexachlorobenzene	ug/L	5.0		U		10
PW-C	Hexachlorobutadiene	ug/L	5.0		U		10
PW-C	Hexachlorocyclopentadiene	ug/L	5.0		U		10
PW-C	Hexachloroethane	ug/L	5.0		U		10
PW-C	Indeno(1,2,3-cd)pyrene	ug/L	5.0		U		10
PW-C	Isophorone	ug/L	5.0		U		10

BOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-C	N-Nitroso-di-n-propylamine	ug/L	5.0		U		10
PW-C	N-Nitrosodiphenylamine	ug/L	5.0		U		10
PW-C	Naphthalene	ug/L	5.0		U		10
PW-C	Nitrobenzene	ug/L	5.0		U		10
PW-C	Pentachlorophenol	ug/L	20		U		25
PW-C	Phenanthrene	ug/L	5.0		U		10
PW-C	Phenol	ug/L	5.0		U		10
PW-C	Pyrene	ug/L	5.0		U		10
PW-D	1,2,4-Trichlorobenzene	ug/L	5.0		U		10
PW-D	1,2-Dichlorobenzene	ug/L	5.0		U		10
PW-D	1,3-Dichlorobenzene	ug/L	5.0		U		10
PW-D	1,4-Dichlorobenzene	ug/L	5.0		U		10
PW-D	2,2'-oxybis(1-Chloropropane)	ug/L	5.0		U		10
PW-D	2,4,5-Trichlorophenol	ug/L	20		U		25
PW-D	2,4,6-Trichlorophenol	ug/L	5.0		U		10
PW-D	2,4-Dichlorophenol	ug/L	5.0		U		10
PW-D	2,4-Dimethylphenol	ug/L	5.0		U		10
PW-D	2,4-Dinitrophenol	ug/L	20		U		25
PW-D	2,4-Dinitrotoluene	ug/L	5.0		U		10
PW-D	2,6-Dinitrotoluene	ug/L	5.0		U		10
PW-D	2-Chloronaphthalene	ug/L	5.0		U		10
PW-D	2-Chlorophenol	ug/L	5.0		U		10
PW-D	2-Methylnaphthalene	ug/L	5.0		U		10
PW-D	2-Methylphenol	ug/L	5.0		U		10
PW-D	2-Nitroaniline	ug/L	20		U		25
PW-D	2-Nitrophenol	ug/L	5.0		U		10
PW-D	3,3'-Dichlorobenzidine	ug/L	5.0		U		10
PW-D	3-Nitroaniline	ug/L	20		U		25
PW-D	4,6-Dinitro-2-methylphenol	ug/L	20		U		25
PW-D	4-Bromophenyl-phenylether	ug/L	5.0		U		10
PW-D	4-Chloro-3-methylphenol	ug/L	5.0		U		10
PW-D	4-Chloroaniline	ug/L	5.0		U		10
PW-D	4-Chlorophenyl-phenyl ether	ug/L	5.0		U		10
PW-D	4-Methylphenol	ug/L	5.0		U		10
PW-D	4-Nitroaniline	ug/L	20		U		25
PW-D	4-Nitrophenol	ug/L	20		U		25
PW-D	Acenaphthene	ug/L	5.0		U		10
PW-D	Acenaphthylene	ug/L	5.0		U		10
PW-D	Anthracene	ug/L	5.0		U		10
PW-D	Benzo(a)anthracene	ug/L	5.0		U		10
PW-D	Benzo(a)pyrene	ug/L	5.0		U		10
PW-D	Benzo(b)fluoranthene	ug/L	5.0		U		10
PW-D	Benzo(g,h,i)perylene	ug/L	5.0		U		10
PW-D	Benzo(k)fluoranthene	ug/L	5.0		U		10
PW-D	Bis(2-chloroethoxy)methane	ug/L	5.0		U		10
PW-D	bis(2-chloroethyl) ether	ug/L	5.0		U		10

[redacted] = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-D	Bis(2-ethylhexyl)phthalate	ug/L	5.0		BJ	U	10
PW-D	Butylbenzylphthalate	ug/L	5.0		J	U	10
PW-D	Carbazole	ug/L	5.0		U		10
PW-D	Chrysene	ug/L	5.0		U		10
PW-D	Di-n-butylphthalate	ug/L	5.0		J	U	10
PW-D	Di-n-octylphthalate	ug/L	5.0		U		10
PW-D	Dibenzo(a,h)anthracene	ug/L	5.0		U		10
PW-D	Dibenzofuran	ug/L	5.0		U		10
PW-D	Diethylphthalate	ug/L	5.0		U		10
PW-D	Dimethylphthalate	ug/L	5.0		U		10
PW-D	Fluoranthene	ug/L	5.0		U		10
PW-D	Fluorene	ug/L	5.0		U		10
PW-D	Hexachlorobenzene	ug/L	5.0		U		10
PW-D	Hexachlorobutadiene	ug/L	5.0		U		10
PW-D	Hexachlorocyclopentadiene	ug/L	5.0		U		10
PW-D	Hexachloroethane	ug/L	5.0		U		10
PW-D	Indeno(1,2,3-cd)pyrene	ug/L	5.0		U		10
PW-D	Isophorone	ug/L	5.0		U		10
PW-D	N-Nitroso-di-n-propylamine	ug/L	5.0		U		10
PW-D	N-Nitrosodiphenylamine	ug/L	5.0		U		10
PW-D	Naphthalene	ug/L	5.0		U		10
PW-D	Nitrobenzene	ug/L	5.0		U		10
PW-D	Pentachlorophenol	ug/L	20		U		25
PW-D	Phenanthrene	ug/L	5.0		U		10
PW-D	Phenol	ug/L	5.0		U		10
PW-D	Pyrene	ug/L	5.0		U		10
PW-Y	1,2,4-Trichlorobenzene	ug/L	5.0		U		10
PW-Y	1,2-Dichlorobenzene	ug/L	5.0		U		10
PW-Y	1,3-Dichlorobenzene	ug/L	5.0		U		10
PW-Y	1,4-Dichlorobenzene	ug/L	5.0		U		10
PW-Y	2,2'-oxybis(1-Chloropropane)	ug/L	5.0		U		10
PW-Y	2,4,5-Trichlorophenol	ug/L	20		U		25
PW-Y	2,4,6-Trichlorophenol	ug/L	5.0		U		10
PW-Y	2,4-Dichlorophenol	ug/L	5.0		U		10
PW-Y	2,4-Dimethylphenol	ug/L	5.0		U		10
PW-Y	2,4-Dinitrophenol	ug/L	20		U		25
PW-Y	2,4-Dinitrotoluene	ug/L	5.0		U		10
PW-Y	2,6-Dinitrotoluene	ug/L	5.0		U		10
PW-Y	2-Chloronaphthalene	ug/L	5.0		U		10
PW-Y	2-Chlorophenol	ug/L	5.0		U		10
PW-Y	2-Methylnaphthalene	ug/L	5.0		U		10
PW-Y	2-Methylphenol	ug/L	5.0		U		10
PW-Y	2-Nitroaniline	ug/L	20		U		25
PW-Y	2-Nitrophenol	ug/L	5.0		U		10
PW-Y	3,3'-Dichlorobenzidine	ug/L	5.0		U		10
PW-Y	3-Nitroaniline	ug/L	20		U		25

BOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-Y	4,6-Dinitro-2-methylphenol	ug/L	20		U		25
PW-Y	4-Bromophenyl-phenylether	ug/L	5.0		U		10
PW-Y	4-Chloro-3-methylphenol	ug/L	5.0		U		10
PW-Y	4-Chloroaniline	ug/L	5.0		U		10
PW-Y	4-Chlorophenyl-phenyl ether	ug/L	5.0		U		10
PW-Y	4-Methylphenol	ug/L	5.0		U		10
PW-Y	4-Nitroaniline	ug/L	20		U		25
PW-Y	4-Nitrophenol	ug/L	20		U		25
PW-Y	Acenaphthene	ug/L	5.0		U		10
PW-Y	Acenaphthylene	ug/L	5.0		U		10
PW-Y	Anthracene	ug/L	5.0		U		10
PW-Y	Benzo(a)anthracene	ug/L	5.0		U		10
PW-Y	Benzo(a)pyrene	ug/L	5.0		U		10
PW-Y	Benzo(b)fluoranthene	ug/L	5.0		U		10
PW-Y	Benzo(g,h,i)perylene	ug/L	5.0		U		10
PW-Y	Benzo(k)fluoranthene	ug/L	5.0		U		10
PW-Y	Bis(2-chloroethoxy)methane	ug/L	5.0		U		10
PW-Y	bis(2-chloroethyl) ether	ug/L	5.0		U		10
PW-Y	Bis(2-ethylhexyl)phthalate	ug/L	5.0		BJ	U	10
PW-Y	Butylbenzylphthalate	ug/L	5.0		J	U	10
PW-Y	Carbazole	ug/L	5.0		U		10
PW-Y	Chrysene	ug/L	5.0		U		10
PW-Y	Di-n-butylphthalate	ug/L	5.0		J	U	10
PW-Y	Di-n-octylphthalate	ug/L	5.0		U		10
PW-Y	Dibenzo(a,h)anthracene	ug/L	5.0		U		10
PW-Y	Dibenzofuran	ug/L	5.0		U		10
PW-Y	Diethylphthalate	ug/L	5.0		U		10
PW-Y	Dimethylphthalate	ug/L	5.0		U		10
PW-Y	Fluoranthene	ug/L	5.0		U		10
PW-Y	Fluorene	ug/L	5.0		U		10
PW-Y	Hexachlorobenzene	ug/L	5.0		U		10
PW-Y	Hexachlorobutadiene	ug/L	5.0		U		10
PW-Y	Hexachlorocyclopentadiene	ug/L	5.0		U		10
PW-Y	Hexachloroethane	ug/L	5.0		U		10
PW-Y	Indeno(1,2,3-cd)pyrene	ug/L	5.0		U		10
PW-Y	Isophorone	ug/L	5.0		U		10
PW-Y	N-Nitroso-di-n-propylamine	ug/L	5.0		U		10
PW-Y	N-Nitrosodiphenylamine	ug/L	5.0		U		10
PW-Y	Naphthalene	ug/L	5.0		U		10
PW-Y	Nitrobenzene	ug/L	5.0		U		10
PW-Y	Pentachlorophenol	ug/L	20		U		25
PW-Y	Phenanthrene	ug/L	5.0		U		10
PW-Y	Phenol	ug/L	5.0		U		10
PW-Y	Pyrene	ug/L	5.0		U		10

BOLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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Comparison of Results to Baseline Highest Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
MW-09R	4,4'-DDD	ug/L	0.10		U		0.11
MW-09R	4,4'-DDE	ug/L	0.10		U		0.11
MW-09R	4,4'-DDT	ug/L	0.10		U		0.11
MW-09R	Aldrin	ug/L	0.05		U		0.053
MW-09R	alpha-BHC	ug/L	0.05		U		0.053
MW-09R	alpha-Chlordane	ug/L	0.05		U		0.11
MW-09R	Aroclor-1016	ug/L	1.0		U		1.1
MW-09R	Aroclor-1221	ug/L	2.0		U		2.1
MW-09R	Aroclor-1232	ug/L	1.0		U		1.1
MW-09R	Aroclor-1242	ug/L	1.0		U		1.1
MW-09R	Aroclor-1248	ug/L	1.0		U		1.1
MW-09R	Aroclor-1254	ug/L	1.0		U		1.1
MW-09R	Aroclor-1260	ug/L	1.0		U		1.1
MW-09R	beta-BHC	ug/L	0.05		U		0.053
MW-09R	delta-BHC	ug/L	0.05		U		0.053
MW-09R	Dieldrin	ug/L	0.10		U		0.11
MW-09R	Endosulfan I	ug/L	0.05		U		0.053
MW-09R	Endosulfan II	ug/L	0.10		U		0.11
MW-09R	Endosulfan sulfate	ug/L	0.10		U		0.11
MW-09R	Endrin	ug/L	0.10		U		0.11
MW-09R	Endrin aldehyde	ug/L	0.10		U		0.11
MW-09R	Endrin ketone	ug/L	0.10		U		0.11
MW-09R	gamma-BHC	ug/L	0.05		U		0.053
MW-09R	gamma-Chlordane	ug/L	0.05		U		0.11
MW-09R	Heptachlor	ug/L	0.05		U		0.053
MW-09R	Heptachlor epoxide	ug/L	0.05		U		0.053
MW-09R	Methoxychlor	ug/L	0.50		U		0.53
MW-09R	Toxaphene	ug/L	5.0		U		5.3

(Q) (D) = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-A	4,4'-DDD	ug/L	0.02		U		0.11
PW-A	4,4'-DDE	ug/L	0.02		U		0.11
PW-A	4,4'-DDT	ug/L	0.02		U		0.11
PW-A	Aldrin	ug/L	0.01		U		0.053
PW-A	alpha-BHC	ug/L	0.01		U		0.053
PW-A	alpha-Chlordane	ug/L	0.01		U		0.11
PW-A	Aroclor-1016	ug/L	0.20		U		1.1
PW-A	Aroclor-1221	ug/L	0.40		U		2.1
PW-A	Aroclor-1232	ug/L	0.20		U		1.1
PW-A	Aroclor-1242	ug/L	0.20		U		1.1
PW-A	Aroclor-1248	ug/L	0.20		U		1.1
PW-A	Aroclor-1254	ug/L	0.20		U		1.1
PW-A	Aroclor-1260	ug/L	0.20		U		1.1
PW-A	beta-BHC	ug/L	0.01		U		0.053
PW-A	delta-BHC	ug/L	0.01		U		0.053
PW-A	Dieldrin	ug/L	0.02		U		0.11
PW-A	Endosulfan I	ug/L	0.01		U		0.053
PW-A	Endosulfan II	ug/L	0.02		U		0.11
PW-A	Endosulfan sulfate	ug/L	0.02		U		0.11
PW-A	Endrin	ug/L	0.02		U		0.11
PW-A	Endrin aldehyde	ug/L	0.02		U		0.11
PW-A	Endrin ketone	ug/L	0.02		U		0.11
PW-A	gamma-BHC	ug/L	0.01		U		0.053
PW-A	gamma-Chlordane	ug/L	0.01		U		0.11
PW-A	Heptachlor	ug/L	0.01		U		0.053
PW-A	Heptachlor epoxide	ug/L	0.01		U		0.053
PW-A	Methoxychlor	ug/L	0.10		U		0.53
PW-A	Toxaphene	ug/L	1.0		U		5.3
PW-B	4,4'-DDD	ug/L	0.02		U		0.11
PW-B	4,4'-DDE	ug/L	0.02		U		0.11
PW-B	4,4'-DDT	ug/L	0.02		U		0.11
PW-B	Aldrin	ug/L	0.01		U		0.053
PW-B	alpha-BHC	ug/L	0.01		U		0.053
PW-B	alpha-Chlordane	ug/L	0.01		U		0.11
PW-B	Aroclor-1016	ug/L	0.20		U		1.1
PW-B	Aroclor-1221	ug/L	0.40		U		2.1
PW-B	Aroclor-1232	ug/L	0.20		U		1.1
PW-B	Aroclor-1242	ug/L	0.20		U		1.1
PW-B	Aroclor-1248	ug/L	0.20		U		1.1
PW-B	Aroclor-1254	ug/L	0.20		U		1.1
PW-B	Aroclor-1260	ug/L	0.20		U		1.1
PW-B	beta-BHC	ug/L	0.01		U		0.053
PW-B	delta-BHC	ug/L	0.01		U		0.053
PW-B	Dieldrin	ug/L	0.02		U		0.11
PW-B	Endosulfan I	ug/L	0.01		U		0.053
PW-B	Endosulfan II	ug/L	0.02		U		0.11

BOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-B	Endosulfan sulfate	ug/L	0.02		U		0.11
PW-B	Endrin	ug/L	0.02		U		0.11
PW-B	Endrin aldehyde	ug/L	0.02		U		0.11
PW-B	Endrin ketone	ug/L	0.02		U		0.11
PW-B	gamma-BHC	ug/L	0.01		U		0.053
PW-B	gamma-Chlordane	ug/L	0.01		U		0.11
PW-B	Heptachlor	ug/L	0.01		U		0.053
PW-B	Heptachlor epoxide	ug/L	0.01		U		0.053
PW-B	Methoxychlor	ug/L	0.10		U		0.53
PW-B	Toxaphene	ug/L	1.0		U		5.3
PW-C	4,4'-DDD	ug/L	0.02		U		0.11
PW-C	4,4'-DDE	ug/L	0.02		U		0.11
PW-C	4,4'-DDT	ug/L	0.02		U		0.11
PW-C	Aldrin	ug/L	0.01		U		0.053
PW-C	alpha-BHC	ug/L	0.01		U		0.053
PW-C	alpha-Chlordane	ug/L	0.01		U		0.11
PW-C	Aroclor-1016	ug/L	0.20		U		1.1
PW-C	Aroclor-1221	ug/L	0.40		U		2.1
PW-C	Aroclor-1232	ug/L	0.20		U		1.1
PW-C	Aroclor-1242	ug/L	0.20		U		1.1
PW-C	Aroclor-1248	ug/L	0.20		U		1.1
PW-C	Aroclor-1254	ug/L	0.20		U		1.1
PW-C	Aroclor-1260	ug/L	0.20		U		1.1
PW-C	beta-BHC	ug/L	0.01		U		0.053
PW-C	delta-BHC	ug/L	0.01		U		0.053
PW-C	Dieldrin	ug/L	0.02		U		0.11
PW-C	Endosulfan I	ug/L	0.01		U		0.053
PW-C	Endosulfan II	ug/L	0.02		U		0.11
PW-C	Endosulfan sulfate	ug/L	0.02		U		0.11
PW-C	Endrin	ug/L	0.02		U		0.11
PW-C	Endrin aldehyde	ug/L	0.02		U		0.11
PW-C	Endrin ketone	ug/L	0.02		U		0.11
PW-C	gamma-BHC	ug/L	0.01		U		0.053
PW-C	gamma-Chlordane	ug/L	0.01		U		0.11
PW-C	Heptachlor	ug/L	0.01		U		0.053
PW-C	Heptachlor epoxide	ug/L	0.01		U		0.053
PW-C	Methoxychlor	ug/L	0.10		U		0.53
PW-C	Toxaphene	ug/L	1.0		U		5.3
PW-D	4,4'-DDD	ug/L	0.02		U		0.11
PW-D	4,4'-DDE	ug/L	0.02		U		0.11
PW-D	4,4'-DDT	ug/L	0.02		U		0.11
PW-D	Aldrin	ug/L	0.01		U		0.053
PW-D	alpha-BHC	ug/L	0.01		U		0.053
PW-D	alpha-Chlordane	ug/L	0.01		U		0.11
PW-D	Aroclor-1016	ug/L	0.20		U		1.1
PW-D	Aroclor-1221	ug/L	0.40		U		2.1

BOLD = Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-D	Aroclor-1232	ug/L	0.20		U		1.1
PW-D	Aroclor-1242	ug/L	0.20		U		1.1
PW-D	Aroclor-1248	ug/L	0.20		U		1.1
PW-D	Aroclor-1254	ug/L	0.20		U		1.1
PW-D	Aroclor-1260	ug/L	0.20		U		1.1
PW-D	beta-BHC	ug/L	0.01		U		0.053
PW-D	delta-BHC	ug/L	0.01		U		0.053
PW-D	Dieldrin	ug/L	0.02		U		0.11
PW-D	Endosulfan I	ug/L	0.01		U		0.053
PW-D	Endosulfan II	ug/L	0.02		U		0.11
PW-D	Endosulfan sulfate	ug/L	0.02		U		0.11
PW-D	Endrin	ug/L	0.02		U		0.11
PW-D	Endrin aldehyde	ug/L	0.02		U		0.11
PW-D	Endrin ketone	ug/L	0.02		U		0.11
PW-D	gamma-BHC	ug/L	0.01		U		0.053
PW-D	gamma-Chlordane	ug/L	0.01		U		0.11
PW-D	Heptachlor	ug/L	0.01		U		0.053
PW-D	Heptachlor epoxide	ug/L	0.01		U		0.053
PW-D	Methoxychlor	ug/L	0.10		U		0.53
PW-D	Toxaphene	ug/L	1.0		U		5.3
PW-Y	4,4'-DDD	ug/L	NA		U		0.11
PW-Y	4,4'-DDE	ug/L	NA		U		0.11
PW-Y	4,4'-DDT	ug/L	NA		U		0.11
PW-Y	Aldrin	ug/L	NA		U		0.053
PW-Y	alpha-BHC	ug/L	NA		U		0.053
PW-Y	alpha-Chlordane	ug/L	NA		U		0.11
PW-Y	Aroclor-1016	ug/L	NA		U		1.1
PW-Y	Aroclor-1221	ug/L	NA		U		2.1
PW-Y	Aroclor-1232	ug/L	NA		U		1.1
PW-Y	Aroclor-1242	ug/L	NA		U		1.1
PW-Y	Aroclor-1248	ug/L	NA		U		1.1
PW-Y	Aroclor-1254	ug/L	NA		U		1.1
PW-Y	Aroclor-1260	ug/L	NA		U		1.1
PW-Y	beta-BHC	ug/L	NA		U		0.053
PW-Y	delta-BHC	ug/L	NA		U		0.053
PW-Y	Dieldrin	ug/L	NA		U		0.11
PW-Y	Endosulfan I	ug/L	NA		U		0.053
PW-Y	Endosulfan II	ug/L	NA		U		0.11
PW-Y	Endosulfan sulfate	ug/L	NA		U		0.11
PW-Y	Endrin	ug/L	NA		U		0.11
PW-Y	Endrin aldehyde	ug/L	NA		U		0.11
PW-Y	Endrin ketone	ug/L	NA		U		0.11
PW-Y	gamma-BHC	ug/L	NA		U		0.053
PW-Y	gamma-Chlordane	ug/L	NA		U		0.11
PW-Y	Heptachlor	ug/L	NA		U		0.053
PW-Y	Heptachlor epoxide	ug/L	NA		U		0.053

HBQLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-Y	Methoxychlor	ug/L	NA		U		0.53
PW-Y	Toxaphene	ug/L	NA		U		5.3

= Exceedance
NA = Not Applicable

AHS/JJN/ahs
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INORGANICS

Comparison of Results to Baseline Highest Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
MW-09R	Aluminum	ug/L	2,580		B	U	73.9
MW-09R	Antimony	ug/L	2.0		U		33
MW-09R	Arsenic	ug/L	6.8		U		1.8
MW-09R	Barium	ug/L	349	285			NA
MW-09R	Beryllium	ug/L	1.0		U		0.4
MW-09R	Cadmium	ug/L	2.4		U		2.6
MW-09R	Calcium	ug/L	159,000	148,000			NA
MW-09R	Chromium (Total)	ug/L	45		U		2.7
MW-09R	Cobalt	ug/L	9.3		U		2.4
MW-09R	Copper	ug/L	24		B	U	5
MW-09R	Cyanide (Total)	ug/L	10		U		0.7
MW-09R	Iron	ug/L	20,700	11,800			NA
MW-09R	Lead	ug/L	6.7		U		0.9
MW-09R	Magnesium	ug/L	33,000	27,200			NA
MW-09R	Manganese	ug/L	249	196	E	J	NA
MW-09R	Mercury	ug/L	0.67		U		0.1
MW-09R	Nickel	ug/L	38		U		10.8
MW-09R	Potassium	ug/L	11,150			U	6,200
MW-09R	Selenium	ug/L	2.0		U		2.2
MW-09R	Silver	ug/L	1.0		U		5
MW-09R	Sodium	ug/L	110,000	64,500			NA
MW-09R	Thallium	ug/L	3.0		U		2.8
MW-09R	Vanadium	ug/L	9.6		B	U	36.1
MW-09R	Zinc	ug/L	41		B	U	14.5
MW-48	Arsenic	ug/L	13	9	B		NA
MW-48	Lead	ug/L	7.7		U		0.9
MW-49	Arsenic	ug/L	38	[redacted]			NA
MW-49	Lead	ug/L	4.4		U		0.9

[redacted] = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-A	Aluminum	ug/L	11		B	U	161
PW-A	Antimony	ug/L	1.0		U		33
PW-A	Arsenic	ug/L	2.0		U		1.8
PW-A	Barium	ug/L	119	109	B		NA
PW-A	Beryllium	ug/L	1.0		U		0.4
PW-A	Cadmium	ug/L	1.0		U		2.6
PW-A	Calcium	ug/L	93,400	85,200			NA
PW-A	Chromium (Total)	ug/L	1.0		U		2.7
PW-A	Cobalt	ug/L	1.0		U		2.4
PW-A	Copper	ug/L	4.8	3.8	B		NA
PW-A	Cyanide (Total)	ug/L	10		U		0.7
PW-A	Iron	ug/L	2,870	**3,180**			NA
PW-A	Lead	ug/L	1.0		U		0.9
PW-A	Magnesium	ug/L	43,500	39,800			NA
PW-A	Manganese	ug/L	54	**54.2**	E	J	NA
PW-A	Mercury	ug/L	0.20		U		0.1
PW-A	Nickel	ug/L	2.5		U		10.8
PW-A	Potassium	ug/L	1,860		U		1,220
PW-A	Selenium	ug/L	2.0		U		2.2
PW-A	Silver	ug/L	1.0		U		5
PW-A	Sodium	ug/L	15,600	14,100			NA
PW-A	Thallium	ug/L	3.0		U		2.8
PW-A	Vanadium	ug/L	1.0		B	U	27.5
PW-A	Zinc	ug/L	121	**139**			NA
PW-B	Aluminum	ug/L	19		B	U	85.2
PW-B	Antimony	ug/L	1.0		U		33
PW-B	Arsenic	ug/L	2.0		U		1.8
PW-B	Barium	ug/L	121	**124**	B		NA
PW-B	Beryllium	ug/L	1.0		U		0.4
PW-B	Cadmium	ug/L	1.0		U		2.6
PW-B	Calcium	ug/L	91,200	85,000			NA
PW-B	Chromium (Total)	ug/L	1.0		B	U	3
PW-B	Cobalt	ug/L	1.0		U		2.4
PW-B	Copper	ug/L	2.3		B	U	4.1
PW-B	Cyanide (Total)	ug/L	10		U		0.7
PW-B	Iron	ug/L	2,170	**3,180**			NA
PW-B	Lead	ug/L	1.0		U		0.9
PW-B	Magnesium	ug/L	42,700	40,900			NA
PW-B	Manganese	ug/L	56	**56.8**	E	J	NA
PW-B	Mercury	ug/L	0.20		U		0.1
PW-B	Nickel	ug/L	3.3		U		10.8
PW-B	Potassium	ug/L	1,760		U		1,220
PW-B	Selenium	ug/L	2.0		U		2.2
PW-B	Silver	ug/L	1.0		U		5
PW-B	Sodium	ug/L	14,200	13,400			NA

BOLD = Exceedance
NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-B	Thallium	ug/L	3.0		U		2.8
PW-B	Vanadium	ug/L	1.0		B	U	13
PW-B	Zinc	ug/L	9.6		B	U	15.4
PW-C	Aluminum	ug/L	25		B	U	24.5
PW-C	Antimony	ug/L	1.0		U		33
PW-C	Arsenic	ug/L	2.0		U		1.8
PW-C	Barium	ug/L	166	153	B		NA
PW-C	Beryllium	ug/L	1.0		U		0.4
PW-C	Cadmium	ug/L	1.0		U		2.6
PW-C	Calcium	ug/L	93,200	79,900			NA
PW-C	Chromium (Total)	ug/L	1.0			U	13.5
PW-C	Cobalt	ug/L	1.0		U		2.4
PW-C	Copper	ug/L	32		B	U	5.8
PW-C	Cyanide (Total)	ug/L	10		U		0.7
PW-C	Iron	ug/L	3,030	2,440			NA
PW-C	Lead	ug/L	1.9		U		0.9
PW-C	Magnesium	ug/L	53,700	45,400			NA
PW-C	Manganese	ug/L	35		E	UJ	32
PW-C	Mercury	ug/L	0.20	0.12	B		NA
PW-C	Nickel	ug/L	1.0		U		10.8
PW-C	Potassium	ug/L	2,730		B	U	1,530
PW-C	Selenium	ug/L	2.0		U		2.2
PW-C	Silver	ug/L	1.0		U		5
PW-C	Sodium	ug/L	23,300	22,400			NA
PW-C	Thallium	ug/L	3.0		U		2.8
PW-C	Vanadium	ug/L	1.0		B	U	23.5
PW-C	Zinc	ug/L	79		B	U	14.2
PW-D	Aluminum	ug/L	125		B	U	21
PW-D	Antimony	ug/L	1.0		U		33
PW-D	Arsenic	ug/L	2.0		U		1.8
PW-D	Barium	ug/L	157	144	B		NA
PW-D	Beryllium	ug/L	1.0		U		0.4
PW-D	Cadmium	ug/L	1.1		U		2.6
PW-D	Calcium	ug/L	96,800	87,800			NA
PW-D	Chromium (Total)	ug/L	1.0		U		2.7
PW-D	Cobalt	ug/L	1.0		U		2.4
PW-D	Copper	ug/L	155		B	U	4.8
PW-D	Cyanide (Total)	ug/L	10		U		0.7
PW-D	Iron	ug/L	3,190	2,330			NA
PW-D	Lead	ug/L	23		U		0.9
PW-D	Magnesium	ug/L	50,900	45,400			NA
PW-D	Manganese	ug/L	48		E	UJ	34.5
PW-D	Mercury	ug/L	0.20		U		0.1
PW-D	Nickel	ug/L	4.3		U		10.8
PW-D	Potassium	ug/L	2,660		B	U	1,560

= Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

Comparison of Current Results to Baseline Detections
September 1998
American Chemical Services NPL Site
Griffith, Indiana

Well	Analyte	Units	Baseline Detection	CurrentEvent			
				Result	LQ	DQ	Detect Limit
PW-D	Selenium	ug/L	2.0		U		2.2
PW-D	Silver	ug/L	1.0		U		5
PW-D	Sodium	ug/L	24,100	18,500			NA
PW-D	Thallium	ug/L	3.0		U		2.8
PW-D	Vanadium	ug/L	1.0		B	U	21.4
PW-D	Zinc	ug/L	1,580		B	U	19.5
PW-Y	Aluminum	ug/L	10		B	U	43
PW-Y	Antimony	ug/L	1.0		U		33
PW-Y	Arsenic	ug/L	2.0		U		1.8
PW-Y	Barium	ug/L	132	133	B		NA
PW-Y	Beryllium	ug/L	1.0		U		0.4
PW-Y	Cadmium	ug/L	1.0		U		2.6
PW-Y	Calcium	ug/L	81,750	77,900			NA
PW-Y	Chromium (Total)	ug/L	2.4		U		2.7
PW-Y	Cobalt	ug/L	1.0		U		2.4
PW-Y	Copper	ug/L	2.0		U		2.9
PW-Y	Cyanide (Total)	ug/L	10		U		0.7
PW-Y	Iron	ug/L	2,550	2,890			NA
PW-Y	Lead	ug/L	1.0		U		0.9
PW-Y	Magnesium	ug/L	43,100	41,100			NA
PW-Y	Manganese	ug/L	29		E	UJ	30.3
PW-Y	Mercury	ug/L	0.20	0.14	B		NA
PW-Y	Nickel	ug/L	3.4		U		10.8
PW-Y	Potassium	ug/L	2,765		U		1,220
PW-Y	Selenium	ug/L	2.1		U		2.2
PW-Y	Silver	ug/L	1.0		U		5
PW-Y	Sodium	ug/L	23,300	18,900			NA
PW-Y	Thallium	ug/L	2.3		U		2.8
PW-Y	Vanadium	ug/L	1.0		B	U	21.3
PW-Y	Zinc	ug/L	25		B	U	17.2

= Exceedance

NA = Not Applicable

AHS/JJN/ahs
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1252042.221601

B

APPENDIX B

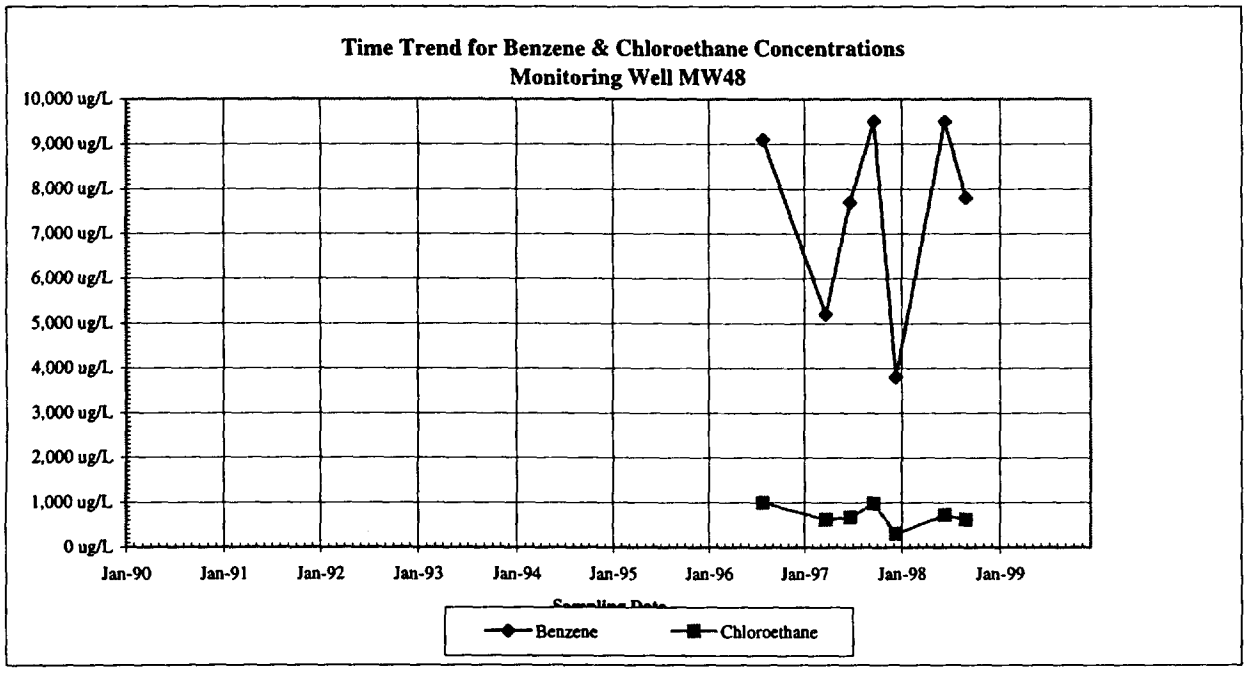
TIME TREND PLOTS

Upper Aquifer Monitoring Well: MW48

Baseline Groundwater Monitoring
ACS NPL Site

MW48

Date	Benzene	Chloroethane
August-89		
May-90		
December-94		
August-96	9,100 ug/L	1,000 ug/L
March-97	5,200 ug/L	620 ug/L
June-97	7,700 ug/L	670 ug/L
September-97	9,500 ug/L	980 ug/L
December-97	3,800 ug/L	300 ug/L
June-98	9,500 ug/L	720 ug/L
September-98	7,800 ug/L	610 ug/L
December-98		
October-99		



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Timetrnd_North\MW48

12/15/98

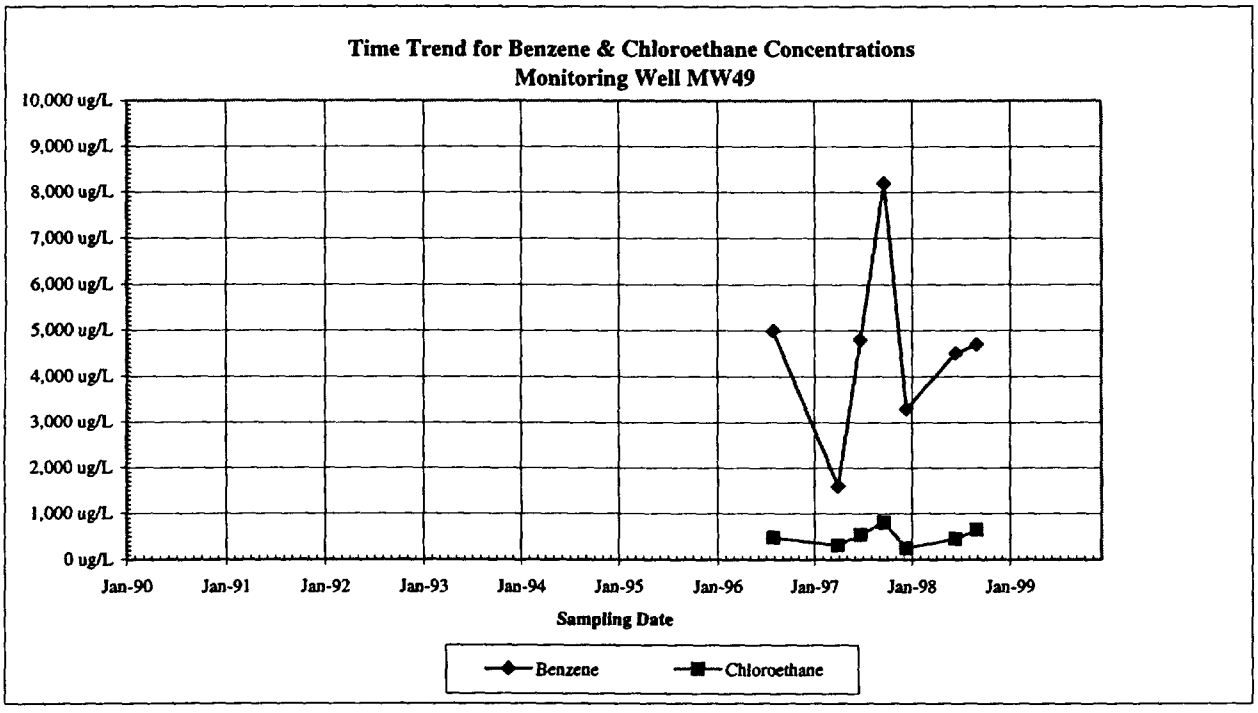
Upper Aquifer Monitoring Well: MW49

Baseline Groundwater Monitoring
ACS NPL Site

MW49

Date	Benzene	Chloroethane
August-89		
May-90		
December-94		
August-96	5,000 ug/L	480 ug/L
April-97	1,600 ug/L	310 ug/L
June-97	4,800 ug/L	540 ug/L
September-97	8,200 ug/L	810 ug/L
December-97	3,300 ug/L	250 ug/L
June-98	4,500 ug/L	450 ug/L
September-98	4,700 ug/L	650 ug/L
December-98		
October-99		

BDL = Below the Detection Limit



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12/15/98

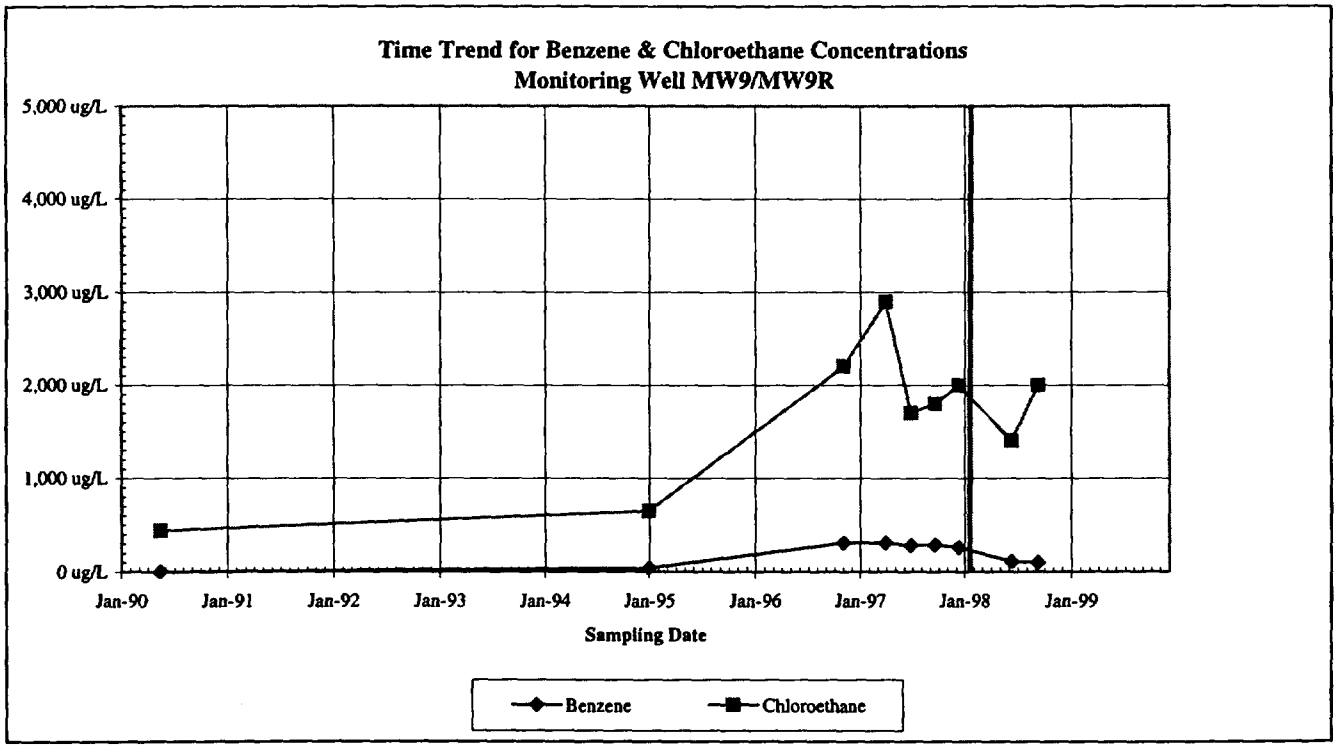
Lower Aquifer Monitoring Well: MW9/MW9R

Baseline Groundwater Monitoring
ACS NPL Site

MW9/MW9R

Date	Benzene	Chloroethane
August-89		
May-90	BDL	440 ug/L
January-95	40 ug/L	650 ug/L
November-96	310 ug/L	2,200 ug/L
April-97	310 ug/L	2,900 ug/L
June-97	280 ug/L	1,700 ug/L
September-97	290 ug/L	1,800 ug/L
December-97	260 ug/L	2,000 ug/L
June-98	110 ug/L	1,400 ug/L
September-98	100 ug/L	2,000 ug/L
December-98		
October-99		

BDL = Below the Detection Limit



Line indicates change to replacement well

APE/JJN
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Timetrnd-LA\MW9

12/15/98

C

APPENDIX C

VALIDATION NARRATIVE AND LABORATORY REPORTS FROM UPPER AQUIFER

VALIDATION NARRATIVE

Project: ACS
Number: 1252042

Analysis: VOCs, SVOCs, PCBs
Matrix: Groundwater

Validated By: JAH

Date: 11-24-98

This narrative covers the validation of groundwater samples from ACS for CLP organic analysis by Quanterra laboratories using CLP methodologies. Validation was performed using the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Analysis Review* (2/94). The data is validated as acceptable for use in site evaluation with the following comments:

Hold Times All hold times were met.

Instrument Performance All VOC instrument BFB tuning criteria was acceptable. All SVOC instrument DFTPP tuning criteria was acceptable. All pesticide/PCB resolution check mixture, PEM DDT and endrin breakdown, florisil cartridge check and GPC calibration check QC criteria was acceptable.

Calibration All VOC calibration criteria was acceptable. All SVOC calibration criteria was acceptable. All pesticide calibration criteria were acceptable.

Blanks VOC method blanks, two trip blank, and one field blank were analyzed. The VOC method blanks contained methylene chloride and acetone. The trip blanks contained methylene chloride and acetone. The field blank contained acetone, chloroform, and benzene. Sample results were qualified using the 5x/10x rule as undetected at the sample result or the CRQL, whichever was greater.

Benzene was present in the GWMW samples (up to 9400 ug/L), which were analyzed interspersed with the private well samples. Four private well samples and the field blank, run after these contaminated samples, had low concentrations of benzene (less the CRQL of 10 ug/L) that are likely the result of instrument carryover. These PW benzene results have been qualified as undetected ("U") at the CRQL of 10 ug/L. If benzene results less than the CRQL are required, the samples should be re-collected and analyzed on a system known to be free of benzene using the low concentration volatile method.

SVOC method blanks and one field blank were analyzed. Both contained bis(2-ethylhexyl)phthalate, di-n-butylphthalate, and butylbenzylphthalate. Sample results were qualified using the 5x/10x rule as undetected at the sample result or the CRQL, whichever was greater.

Pesticide/PCB method blanks and one field blank were analyzed. No compounds were detected.

Surrogates All VOC surrogate recoveries were within QC limits.
All SVOC surrogate recoveries were within QC limits.
All pesticide/PCB surrogate recoveries were within advisory QC limits.

Matrix Spikes All matrix spike recoveries and RPDs were within acceptable data validation QC limits.

Field Duplicates VOC field duplicate results were within acceptable QC limits. SVOC field duplicate results were within acceptable QC limits. Pesticide/PCB field duplicate results were within acceptable QC limits.

Internal Standards All VOC internal standard results were within acceptable validation limits. All SVOC internal standard results were within acceptable validation limits.

Compound Identification VOC target compound qualitative identification criteria, including RRTs and mass spectra criteria was acceptable. SVOC target compound qualitative identification criteria, including RRTs and mass

spectra confirmation criteria was acceptable. Pesticide/PCB target compound qualitative identification criteria, including RRTs, scaling, baseline resolution, and dual column confirmation criteria was acceptable.

System Performance VOC system performance, including RIC baseline, resolution, and peak shape was acceptable. SVOC system performance, including RIC baseline, resolution, and peak shape was acceptable. Pesticide florisil and GPC cleanup check results were within acceptable QC limits.

Sample Results Overall data quality by the laboratory was good, with no significant instrument related problems observed.

JAH/jah
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VALIDATION NARRATIVE

Project: ACS
Number: 1252042

Analysis: INORGANICS
Matrix: Groundwater (September 1998)

Validated By: JAH

Date: 11-24-98

This narrative covers the validation of groundwater samples from ACS for CLP inorganic analysis by Quanterra laboratories using CLP methodologies for metals and cyanide, and EPA methods for indicators. Validation was performed using the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Analysis Review* (2/94). The data is validated as acceptable for use in site evaluation with the following comments/qualifiers:

Hold Times All hold times (6 months for metals, 28 days for mercury, and 14 days for cyanide; 48 hours for BOD and o-phosphorous; 14 days for NO_3+NO_2, 28 days for ammonia, TKN, sulfate, TOC) were met.

Calibration All instrument calibration criteria (calibration/ICV/CCV) was acceptable.

Blanks Initial, continuing, and prep blanks were analyzed, together with one field blanks For blanks with analytes greater than the IDL but less than 5x the CRDL, associated sample results less than 5x the blank level were reported as undetected (U), for sample results greater than 5x the blank level were qualified as estimated (J).

Interference Check Sample All Solution AB recoveries were within $\pm$ 20% of the true value.

Laboratory Control Sample All LCS recoveries were within 80-120% recovery.

Lab and Field Duplicates Lab duplicate results were within acceptable QC limits ($\pm$ 20% RPD). Field duplicate results were acceptable.

Matrix Spikes All matrix spike recoveries and RPDs were within acceptable QC limits (75-125% recovery). Matrix Spikes were not performed on indicators.

Furnace Atomic Absorption QC No graphite furnace runs were performed.

ICP Serial Dilution All ICP serial dilution results were within acceptable QC limits ($\pm$ 10% Difference if original results greater than 50x IDL), except for manganese (lab qualifier E). Manganese results have been estimated.

Sample Result Verification Calculations and transcriptions were review and were acceptable. Overall data quality by the laboratory was good, with no significant instrument related problems observed.

Additional Case Specific Problems No additional problems were observed with this case.

JAH/jah
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW4806

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1622

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	610 D J ~~560~~ ~~E~~	
75-35-4	1,1-Dichloroethene	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
79-01-6	Trichloroethene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	7,800 D ~~1700~~ ~~E~~	
127-18-4	Tetrachloroethene	10	U
156-60-5	trans-1,2-Dichloroethene	1	J
156-59-2	cis-1,2-Dichloroethene	10	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GWMW4806

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1622

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	352-93-2	DIETHYL SULFIDE	10.64	14.39	NJ
2.	110-81-6	DISULFIDE, DIETHYL	21.59	125.5	NJ
3.	873-94-9	CYCLOHEXANONE, 3,3,5-TRIMETH	24.12	24.57	NJ
4.					
5.					
6.					
7.					
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30.					

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWMW48-06

ab Name: QUANTERRA_MO Contract: 707.03
ab Code: ITMO Case No.: SAS No.: SDG No.: ACS6
atrix (soil/water): WATER Lab Sample ID: 18882-002
evel (low/med): LOW Date Received: 09/17/98
Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	9.0	B		P
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

lor Before: COLORLESS Clarity Before: CLEAR Texture:
lor After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW4896

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-017

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1631

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/19/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 25.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
75-01-4	Vinyl Chloride		250	U
75-00-3	Chloroethane		680	
75-35-4	1,1-Dichloroethene		250	U
107-06-2	1,2-Dichloroethane		250	U
71-55-6	1,1,1-Trichloroethane		250	U
79-01-6	Trichloroethene		250	U
79-00-5	1,1,2-Trichloroethane		250	U
71-43-2	Benzene	8,300 D	~~9400~~	~~D~~
127-18-4	Tetrachloroethene		250	U
156-60-5	trans-1,2-Dichloroethene		250	U
156-59-2	cis-1,2-Dichloroethene		250	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWMW4896

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-017

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1631

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/19/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 25.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	110-81-6	DISULFIDE, DIETHYL	21.56	138.9	NJ
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWMW48-96

ab Name: QUANTERRA_MO Contract: 707.03

ab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

atrix (soil/water): WATER Lab Sample ID: 18882-017

evel (low/med): LOW Date Received: 09/17/98

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	10.4			P
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

lor Before: COLORLESS Clarity Before: CLEAR Texture:

lor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW4906

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1621

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	650 D ~~720 E~~	
75-35-4	1,1-Dichloroethene	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
79-01-6	Trichloroethene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	4,700 D ~~1400 E~~	
127-18-4	Tetrachloroethene	10	U
156-60-5	trans-1,2-Dichloroethene	5	J
156-59-2	cis-1,2-Dichloroethene	10	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GWMW4906

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1621

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	10.64	13.50	J
2.	873-94-9	CYCLOHEXANONE, 3,3,5-TRIMETH	24.12	23.45	NJ
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
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29.					
30.					

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWMW49-06

ab Name: QUANTERRA_MO Contract: 707.03

ab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

atrix (soil/water): WATER Lab Sample ID: 18882-001

evel (low/med): LOW Date Received: 09/17/98

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	46.0			P
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

lor Before: COLORLESS Clarity Before: CLEAR Texture:

lor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:

FORM I - IN

ILM03.0

000007

Quanterra

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: AMMONIA
Method: EPA 350.1
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
CS-GWMW48-06	18882-002	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	7170	UG/L		500	10
CS-GWMW45-06	18882-003	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	1350	UG/L		100	2
CS-GWMW41-06	18882-004	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	50.0	UG/L	U	50.0	1
CS-GWMW40-06	18882-005	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	50.0	UG/L	U	50.0	1
CS-GWMW39-06	18882-006	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	3310	UG/L		500	10
CS-GWMW38-06	18882-007	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	301	UG/L		50.0	1
CS-GWMW18-06	18893-001	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	50.0	UG/L	U	50.0	1
CS-GWMW19-06	18893-002	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	41700	UG/L		2500	50
A	QCBLK186789-1	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	50.0	UG/L	U	50.0	1
	QCLCS186789-1	Ammonia	7664-41-7	QCBLK186789-1	10/07/98	10/07/98	98	%REC			1

Quanterra

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: Total Kjeldahl Nitrogen
Method: EPA 351.2
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
ICS-GWMW48-06	18882-002	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	6850	UG/L		1000	20
ICS-GWMW45-06	18882-003	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	1660	UG/L		250	5
CS-GWMW41-06	18882-004	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	136	UG/L		50.0	1
ICS-GWMW40-06	18882-005	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	300	UG/L		50.0	1
CS-GWMW39-06	18882-006	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	3690	UG/L		500	10
ICS-GWMW38-06	18882-007	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	729	UG/L		50.0	1
CS-GWMW18-06	18893-001	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	334	UG/L		50.0	1
CS-GWMW19-06	18893-002	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	43000	UG/L		2500	50
NA	QCBLK187042-1	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	50.0	UG/L	U	50.0	1
A	QCLCS187042-1	TKN	C-021	QCBLK187042-1	10/07/98	10/08/98	94	%REC			1

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: Nitrate/Nitrite
Method: EPA 353.1
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
ACS-GWMW48-06	18882-002	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
ACS-GWMW45-06	18882-003	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
CS-GWMW41-06	18882-004	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
ACS-GWMW40-06	18882-005	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
CS-GWMW39-06	18882-006	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
ACS-GWMW38-06	18882-007	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
CS-GWMW18-06	18893-001	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	4770	UG/L		500	10
CS-GWMW19-06	18893-002	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
NA	QCBLK186313-1	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	50.0	UG/L	U	50.0	1
A	QCLCS186313-1	Nitrate/Nitrite	C-005	QCBLK186313-1	10/01/98	10/01/98	98	%REC			1

Quanterra

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: Anions
Method: EPA 300.0
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
ACS-GWMW48-06	18882-002	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
CS-GWMW45-06	18882-003	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
CS-GWMW41-06	18882-004	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	32.1	MG/L		1.00	2
ACS-GWMW40-06	18882-005	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	43.0	MG/L		2.50	5
CS-GWMW39-06	18882-006	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	20.0	MG/L		0.50	1
ACS-GWMW38-06	18882-007	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	21.3	MG/L		1.00	2
CS-GWMW18-06	18893-001	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	38.1	MG/L		2.50	5
CS-GWMW19-06	18893-002	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	8.36	MG/L		0.50	1
NA	QCBLK186396-1	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
A	QCLCS186396-1	Sulfate	14808-79-8	QCBLK186396-1	09/18/98	09/18/98	92	%REC			1

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: Anions
Method: EPA 300.0
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
ACS-GWMW48-06	18882-002	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW45-06	18882-003	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW41-06	18882-004	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW40-06	18882-005	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW39-06	18882-006	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW38-06	18882-007	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW18-06	18893-001	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
ACS-GWMW19-06	18893-002	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
NA	QCBLK186396-1	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	0.50	MG/L	U	0.50	1
NA	QCLCS186396-1	O-phosphate-P	14265-44-2	QCBLK186396-1	09/18/98	09/18/98	97	%REC			1

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: BOD
Method: EPA 405.1
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
ACS-GWMW48-06	18882-002	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	19.0	MG/L		2.00	1
ACS-GWMW45-06	18882-003	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	17.6	MG/L		2.00	1
ACS-GWMW41-06	18882-004	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	2.14	MG/L		2.00	1
ACS-GWMW40-06	18882-005	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	2.00	MG/L	U	2.00	1
ACS-GWMW39-06	18882-006	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	3.12	MG/L		2.00	1
ACS-GWMW38-06	18882-007	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	5.52	MG/L		2.00	1
ACS-GWMW18-06	18893-001	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	21.9	MG/L		2.00	1
ACS-GWMW19-06	18893-002	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	2.13	MG/L		2.00	1
NA	QCBLK185096-1	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	2.00	MG/L	U	2.00	1
IA	QCLCS185096-1	BOD	C-002	QCBLK185096-1	09/18/98	09/25/98	60	%REC			1

Quanterra

Montgomery Watson
2100 CORPORATE DRIVE
Addison, IL 60101

Project: Montgomery Watson

Category: TOC
Method: EPA 415.1
Matrix: Water

Sample Date : 09/15/98
Receipt Date : 09/17/98
Report Date : 10/20/98

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
CS-GWMW48-06	18882-002	Total Organic C	C-012	QCBLK187575-1	10/09/98	10/09/98	11.3	MG/L		2.00	2
CS-GWMW45-06	18882-003	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	5.42	MG/L		2.00	2
CS-GWMW41-06	18882-004	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	1.51	MG/L		1.00	1
CS-GWMW40-06	18882-005	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	1.43	MG/L		1.00	1
CS-GWMW39-06	18882-006	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	2.93	MG/L		1.00	1
CS-GWMW38-06	18882-007	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	10.3	MG/L		2.00	2
CS-GWMW18-06	18893-001	Total Organic C	C-012	QCBLK187649-2	10/13/98	10/13/98	3.10	MG/L		2.00	2
CS-GWMW19-06	18893-002	Total Organic C	C-012	QCBLK187649-2	10/13/98	10/13/98	18.5	MG/L	U	2.00	2
A	QCBLK187649-1	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	1.00	MG/L	U	1.00	1
A	QCBLK187649-2	Total Organic C	C-012	QCBLK187649-2	10/13/98	10/13/98	1.00	MG/L	U	1.00	1
A	QCLCS187649-1	Total Organic C	C-012	QCBLK187649-1	10/13/98	10/13/98	98	%REC			1
A	QCLCS187649-3	Total Organic C	C-012	QCBLK187649-2	10/13/98	10/13/98	96	%REC			1
A	QCBLK187575-1	Total Organic C	C-012	QCBLK187575-1	10/09/98	10/09/98	1.00	MG/L	U	1.00	1
A	QCLCS187575-1	Total Organic C	C-012	QCBLK187575-1	10/09/98	10/09/98	113	%REC			1

APPENDIX D

VALIDATION NARRATIVE AND LABORATORY REPORTS FROM LOWER AQUIFER

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW09R06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18893-003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1673

Level: (low/med) LOW Date Received: 09/18/98

% Moisture: not dec. _____ Date Analyzed: 09/22/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L			Q	
74-87-3	Chloromethane			10	U	
74-83-9	Bromomethane			10	U	
75-01-4	Vinyl Chloride			4	J	
75-00-3	Chloroethane	2,000	D	~~1800~~	~~E~~	
75-09-2	Methylene Chloride	10	U	9	JB	BLANK CONTAMINANT
67-64-1	Acetone	10	U	3	JB	
75-15-0	Carbon Disulfide			10	U	
75-35-4	1,1-Dichloroethene			10	U	
75-34-3	1,1-Dichloroethane			10	U	
540-59-0	1,2-Dichloroethene (total)			1	J	
67-66-3	Chloroform			10	U	
107-06-2	1,2-Dichloroethane			10	U	
78-93-3	2-Butanone			10	U	
71-55-6	1,1,1-Trichloroethane			10	U	
56-23-5	Carbon Tetrachloride			10	U	
75-27-4	Bromodichloromethane			10	U	
78-87-5	1,2-Dichloropropane			10	U	
10061-01-5	cis-1,3-Dichloropropene			10	U	
79-01-6	Trichloroethene			10	U	
124-48-1	Dibromochloromethane			10	U	
79-00-5	1,1,2-Trichloroethane			10	U	
71-43-2	Benzene			100		
10061-02-6	trans-1,3-Dichloropropene			10	U	
75-25-2	Bromoform			10	U	
108-10-1	4-Methyl-2-pentanone			10	U	
591-78-6	2-Hexanone			10	U	
127-18-4	Tetrachloroethene			10	U	
108-88-3	Toluene			10	U	
79-34-5	1,1,2,2-Tetrachloroethane			10	U	
108-90-7	Chlorobenzene			10	U	
100-41-4	Ethylbenzene			10	U	
100-42-5	Styrene			10	U	
1330-20-7	Xylenes (total)			10	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWMW09R06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18893-003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1673

Level: (low/med) LOW Date Received: 09/18/98

% Moisture: not dec. _____ Date Analyzed: 09/22/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW09R-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18893-003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9031

Level: (low/med) LOW Date Received: 09/18/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW09R-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18893-003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9031

Level: (low/med) LOW Date Received: 09/18/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10 U ~~2~~	J *
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10 U ~~2~~	J *
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U ~~1~~	BJ *
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

* BLANK CONTAMINATION

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GWMW09R-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18893-003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9031

Level: (low/med) LOW Date Received: 09/18/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 22 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.11	8	J
2.		UNKNOWN	7.78	47	J
3.		UNKNOWN	8.39	9	J
4.		UNKNOWN	9.10	17	J
5.		UNKNOWN	10.46	32	J
6.		UNKNOWN	10.69	8	J
7.		UNKNOWN	10.74	7	J
8.		UNKNOWN	10.82	9	J
9.		UNKNOWN	11.81	8	J
10.	480637	Benzoic acid, 2,4,6-trimethyl	12.57	25	JN
11.		UNKNOWN	12.77	5	J
12.		UNKNOWN	13.31	23	J
13.		UNKNOWN	13.51	19	J
14.		UNKNOWN	13.63	19	J
15.		UNKNOWN	14.51	6	J
16.		UNKNOWN	14.68	19	J
17.		UNKNOWN	16.54	6	J
18.		UNKNOWN	17.05	7	J
19.		UNKNOWN	18.12	12	J
20.		UNKNOWN	19.88	12	J
21.		UNKNOWN	22.08	7	J
22.		UNKNOWN	22.74	13	J

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWMW09R-06

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-6

Sample wt/vol: 944.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.053	U
319-85-7	beta-BHC	0.053	U
319-86-8	delta-BHC	0.053	U
58-89-9	gamma-BHC (Lindane)	0.053	U
76-44-8	Heptachlor	0.053	U
309-00-2	Aldrin	0.053	U
1024-57-3	Heptachlor epoxide	0.053	U
959-98-8	Endosulfan I	0.053	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.53	U
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.053	U
5103-74-2	gamma-Chlordane	0.053	U
8001-35-2	Toxaphene	5.3	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWMW09R-06

Lab Name: QUANTERRA_MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix (soil/water): WATER Lab Sample ID: 18893-003

Level (low/med): LOW Date Received: 09/18/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	73.9	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	1.8	U		P
7440-39-3	Barium	285			P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	148000			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	5.0	B		P
7439-89-6	Iron	11800			P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	27200			P
7439-96-5	Manganese	196	J	E	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.8	U		P
7440-09-7	Potassium	6200			P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	64500			P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	36.1	B		P
7440-66-6	Zinc	14.5	B		P
	Cyanide	0.70	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

APPENDIX E

VALIDATION NARRATIVE AND LABORATORY REPORTS FROM PRIVATE WELL SAMPLES

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWA06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1624

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q	
74-87-3	Chloromethane		10	U	
74-83-9	Bromomethane		10	U	
75-01-4	Vinyl Chloride		10	U	
75-00-3	Chloroethane		10	U	
75-09-2	Methylene Chloride		10	U	
67-64-1	Acetone		10	U	
75-15-0	Carbon Disulfide		10	U	
75-35-4	1,1-Dichloroethene		10	U	
75-34-3	1,1-Dichloroethane		10	U	
540-59-0	1,2-Dichloroethene (total)		10	U	
67-66-3	Chloroform		10	U	
107-06-2	1,2-Dichloroethane		10	U	
78-93-3	2-Butanone		10	U	
71-55-6	1,1,1-Trichloroethane		10	U	
56-23-5	Carbon Tetrachloride		10	U	
75-27-4	Bromodichloromethane		10	U	
78-87-5	1,2-Dichloropropane		10	U	
10061-01-5	cis-1,3-Dichloropropene		10	U	
79-01-6	Trichloroethene		10	U	
124-48-1	Dibromochloromethane		10	U	
79-00-5	1,1,2-Trichloroethane		10	U	
71-43-2	Benzene	10 U	~~5~~	J	INSTRUMENT CONTAMINATION
10061-02-6	trans-1,3-Dichloropropene		10	U	
75-25-2	Bromoform		10	U	
108-10-1	4-Methyl-2-pentanone		10	U	
591-78-6	2-Hexanone		10	U	
127-18-4	Tetrachloroethene		10	U	
108-88-3	Toluene		10	U	
79-34-5	1,1,2,2-Tetrachloroethane		10	U	
108-90-7	Chlorobenzene		10	U	
100-41-4	Ethylbenzene		10	U	
100-42-5	Styrene		10	U	
1330-20-7	Xylenes (total)		10	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWA06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1624

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWA-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-009

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9023

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWA-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-009

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9023

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
51-28-5	2,4-Dinitrophenol		26	U
100-02-7	4-Nitrophenol		26	U
132-64-9	Dibenzofuran		10	U
121-14-2	2,4-Dinitrotoluene		10	U
84-66-2	Diethylphthalate		10	U
7005-72-3	4-Chlorophenyl-phenylether		10	U
86-73-7	Fluorene		10	U
100-01-6	4-Nitroaniline		26	U
534-52-1	4,6-Dinitro-2-Methylphenol		26	U
86-30-6	N-Nitrosodiphenylamine (1)		10	U
101-55-3	4-Bromophenyl-phenylether		10	U
118-74-1	Hexachlorobenzene		10	U
87-86-5	Pentachlorophenol		26	U
85-01-8	Phenanthrene		10	U
120-12-7	Anthracene		10	U
86-74-8	Carbazole		10	U
84-74-2	Di-n-Butylphthalate	10 U	~~2~~	J
206-44-0	Fluoranthene		10	U
129-00-0	Pyrene		10	U
85-68-7	Butylbenzylphthalate	10 U	~~1~~	J
91-94-1	3,3'-Dichlorobenzidine		10	U
56-55-3	Benzo(a)Anthracene		10	U
218-01-9	Chrysene		10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U	~~3~~	~~BJ~~ *
117-84-0	Di-n-Octyl Phthalate		10	U
205-99-2	Benzo(b)Fluoranthene		10	U
207-08-9	Benzo(k)Fluoranthene		10	U
50-32-8	Benzo(a)Pyrene		10	U
193-39-5	Indeno(1,2,3-cd)Pyrene		10	U
53-70-3	Dibenz(a,h)Anthracene		10	U
191-24-2	Benzo(g,h,i)Perylene		10	U

(1) - Cannot be separated from Diphenylamine

* BLANK CONTAMINATION

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWA-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-009

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9023

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.		UNKNOWN	7.48	3	J	
~~2.~~		~~UNKNOWN~~	~~22.80~~	~~3~~	~~J~~	*

* BLANK CONTAMINATION

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWA-06

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-8

Sample wt/vol: 948.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.052	U
319-85-7	beta-BHC	0.052	U
319-86-8	delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.052	U
5103-74-2	gamma-Chlordane	0.052	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWPWA-06

ab Name: QUANTERRA_MO_____ Contract: 707.03____

ab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: ACS6_____

atrix (soil/water): WATER Lab Sample ID: 18882-009

evel (low/med): LOW__ Date Received: 09/17/98

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	u 161	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	1.8	U		P
7440-39-3	Barium	109	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	85200			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	3.8	B		P
7439-89-6	Iron	3180			P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	39800			P
7439-96-5	Manganese	J 54.2		E	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.8	U		P
7440-09-7	Potassium	1220	U		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	14100			P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	u 27.5	B		P
7440-66-6	Zinc	139			P
	Cyanide	0.70	U		AS

lor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

lor After: COLORLESS Clarity After: CLEAR Artifacts: _____

omments:

FORM I - IN

ILM03.0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWB06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1634

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/19/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10 U ~~1~~ J	*
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylenes (total)	10	U

* INSTRUMENT CONTAMINATION

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWB06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1634

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/19/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWB-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-008

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9022

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWB-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-008

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9022

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-Methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GWPWB-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-008

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9022

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.52	7	J

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWB-06

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-7

Sample wt/vol: 916.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.054	U
319-85-7	beta-BHC	0.054	U
319-86-8	delta-BHC	0.054	U
58-89-9	gamma-BHC (Lindane)	0.054	U
76-44-8	Heptachlor	0.054	U
309-00-2	Aldrin	0.054	U
1024-57-3	Heptachlor epoxide	0.054	U
959-98-8	Endosulfan I	0.054	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.54	U
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.054	U
5103-74-2	gamma-Chlordane	0.054	U
8001-35-2	Toxaphene	5.4	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWPWB-06

Lab Name: QUANTERRA_MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix (soil/water): WATER Lab Sample ID: 18882-008

Level (low/med): LOW Date Received: 09/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 85.2	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	1.8	U		P
7440-39-3	Barium	124	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	85000			P
7440-47-3	Chromium	U 3.0	B		P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	U 4.1	B		P
7439-89-6	Iron	3180			P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	40900			P
7439-96-5	Manganese	J 56.8		E	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.8	U		P
7440-09-7	Potassium	1220	U		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	13400			P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	U 13.0	B		P
7440-66-6	Zinc	U 15.4	B		P
	Cyanide	0.70	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWC06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-015

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1629

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 U ~~2~~	JB	*
67-64-1	Acetone	10 U ~~1~~	JB	*
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
108-88-3	Toluene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylenes (total)	10	U	

* BLANK CONTAMINATION

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWC06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-015

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1629

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWC-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-015

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9028

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWC-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-015

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9028

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	26	U	
100-02-7	4-Nitrophenol	26	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	26	U	
534-52-1	4,6-Dinitro-2-Methylphenol	26	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	26	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10 U ~~2~~	J	*
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10 U ~~5~~	J	*
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U ~~4~~	BJ	*
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

* BLANK CONTAMINATION

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GWPWC-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-015

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9028

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.		UNKNOWN	7.48	3	J	
~~2.~~		~~UNKNOWN~~	~~22.80~~	~~3~~	~~J~~	*

* BLANK CONTAMINATION

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWC-06

Lab Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-4

Sample wt/vol: 972.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.052	U
319-85-7	beta-BHC	0.052	U
319-86-8	delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.052	U
5103-74-2	gamma-Chlordane	0.052	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWPWC-06

Lab Name: QUANTERRA_MO_____ Contract: 707.03____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: ACS6_____

Matrix (soil/water): WATER Lab Sample ID: 18882-015

Level (low/med): LOW__ Date Received: 09/17/98

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 24.5	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	1.8	U		P
7440-39-3	Barium	153	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	79900			P
7440-47-3	Chromium	U 13.5			P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	U 5.8	B		P
7439-89-6	Iron	2440			P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	45400			P
7439-96-5	Manganese	UJ 32.0		E	P
7439-97-6	Mercury	0.12	B		CV
7440-02-0	Nickel	10.8	U		P
7440-09-7	Potassium	U 1530	B		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	22400			P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	U 23.5	B		P
7440-66-6	Zinc	U 14.2	B		P
	Cyanide	0.70	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix Spike - EPA Sample No.: GWPWC06

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.00	0.0000	56.17	112	61-145
Trichloroethene	50.00	0.0000	49.62	99	71-120
Benzene	50.00	0.0000	50.96	102	76-127
Toluene	50.00	0.0000	52.10	104	76-125
Chlorobenzene	50.00	0.0000	52.79	106	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	55.27	110	2	14	61-145
Trichloroethene	50.00	49.07	98	1	14	71-120
Benzene	50.00	51.25	102	0	11	76-127
Toluene	50.00	50.53	101	3	13	76-125
Chlorobenzene	50.00	49.25	98	8	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix Spike - EPA Sample No.: GWPWC-06

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	75.00	0	50.59	67	12-110
2-Chlorophenol	75.00	0	51.12	68	27-123
1,4-Dichlorobenzene	50.00	0	34.18	68	36- 97
N-Nitroso-di-n-prop.(1)	50.00	0	33.92	68	41-116
1,2,4-Trichlorobenzene	50.00	0	35.11	70	39- 98
4-Chloro-3-methylphenol	75.00	0	54.59	73	23- 97
Acenaphthene	50.00	0	39.43	79	46-118
4-Nitrophenol	75.00	0	59.82	80	10- 80
2,4-Dinitrotoluene	50.00	0	41.06	82	24- 96
Pentachlorophenol	75.00	0	74.33	99	9-103
Pyrene	50.00	0	39.09	78	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75.00	52.43	70	4	42	12-110
2-Chlorophenol	75.00	52.25	70	3	40	27-123
1,4-Dichlorobenzene	50.00	35.78	72	6	28	36- 97
N-Nitroso-di-n-prop.(1)	50.00	37.05	74	8	38	41-116
1,2,4-Trichlorobenzene	50.00	37.50	75	7	28	39- 98
4-Chloro-3-methylphenol	75.00	57.80	77	5	42	23- 97
Acenaphthene	50.00	40.18	80	1	31	46-118
4-Nitrophenol	75.00	63.24	84 *	5	50	10- 80
2,4-Dinitrotoluene	50.00	42.64	85	4	38	24- 96
Pentachlorophenol	75.00	79.00	105 *	6	50	9-103
Pyrene	50.00	42.14	84	7	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS: 18882-015
INST#MSH;JJB;707.03;

000003

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix Spike - EPA Sample No.: GWPWC-06

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	0.520	0	0.406	78	56-123
Heptachlor	0.520	0	0.607	117	40-131
Aldrin	0.520	0	0.489	94	40-120
Dieldrin	1.040	0	1.09	105	52-126
Endrin	1.040	0	1.11	107	56-121
4,4'-DDT	1.040	0	0.940	90	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	0.535	0.362	68	14	15	56-123
Heptachlor	0.535	0.550	103	13	20	40-131
Aldrin	0.535	0.443	83	12	22	40-120
Dieldrin	1.070	0.998	93	12	18	52-126
Endrin	1.070	1.02	95	12	21	56-121
4,4'-DDT	1.070	0.886	83	8	27	38-127

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

GWPWC-06S

Lab Name: QUANTERRA_MO Contract: 707.03

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: ACS6

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	1864.9000		24.5300	B	2000.00	92.0		P
Antimony	75-125	521.6300		33.0000	U	500.00	104.3		P
Arsenic	75-125	1987.8900		1.8000	U	2000.00	99.4		P
Barium	75-125	2193.2200		152.5200	B	2000.00	102.0		P
Beryllium	75-125	52.0300		0.4000	U	50.00	104.1		P
Cadmium	75-125	53.9600		2.6000	U	50.00	107.9		P
Calcium	75-125	130993.3700		79871.9800		50000.00	102.2		P
Chromium	75-125	191.6100		13.5100		200.00	89.0		P
Cobalt	75-125	477.8700		2.4000	U	500.00	95.6		P
Copper	75-125	248.8700		5.7700	B	250.00	97.2		P
Iron	75-125	3408.8200		2441.8800		1000.00	96.7		P
Lead	75-125	463.0600		0.9000	U	500.00	92.6		P
Magnesium	75-125	93704.3900		45423.8300		50000.00	96.6		P
Manganese	75-125	500.0900		31.9800		500.00	93.6		P
Mercury	75-125	1.1900		0.1170	B	1.00	107.3		CV
Nickel	75-125	467.9000		10.8000	U	500.00	93.6		P
Potassium	75-125	51670.4500		1529.5300	B	50000.00	100.3		P
Selenium	75-125	1900.1200		2.2000	U	2000.00	95.0		P
Silver	75-125	38.3500		5.0000	U	50.00	76.7		P
Sodium	75-125	73195.7000		22440.2300		50000.00	101.5		P
Thallium	75-125	1769.9800		2.8000	U	2000.00	88.5		P
Vanadium	75-125	487.0800		23.5100	B	500.00	92.7		P
Zinc	75-125	481.9400		14.2100	B	500.00	93.5		P
Cyanide	75-125	86.3940		0.7000	U	100.00	86.4		AS

Comments:

000025

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

GWPWC-06D

ab Name: QUANTERRA_MO Contract: 707.03

ab Code: ITMO Case No. SAS No. SDG No.: ACS6

atrix (soil/water): WATER Level (low/med): LOW

Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		24.5300	B	33.7700	B	31.7		P
Antimony		33.0000	U	33.0000	U			P
Arsenic		1.8000	U	1.8000	U			P
Barium		152.5200	B	152.8100	B	0.2		P
Beryllium		0.4000	U	0.4000	U			P
Cadmium		2.6000	U	2.6000	U			P
Calcium		79871.9800		83376.0900		4.3		P
Chromium	10.0	13.5100		14.9200		9.9		P
Cobalt		2.4000	U	2.4000	U			P
Copper		5.7700	B	3.0100	B	62.9		P
Iron		2441.8800		2550.7200		4.4		P
Lead		0.9000	U	0.9000	U			P
Magnesium		45423.8300		46622.8000		2.6		P
Manganese	15.0	31.9800		35.6600		10.9		P
Mercury		0.1170	B	0.1000	U	200.0		CV
Nickel		10.8000	U	10.8000	U			P
Potassium		1529.5300	B	1947.0000	B	24.0		P
Selenium		2.2000	U	2.2000	U			P
Silver		5.0000	U	5.0000	U			P
Sodium	5000.0	22440.2300		23442.9800		4.4		P
Thallium		2.8000	U	2.8000	U			P
Vanadium		23.5100	B	31.6800	B	29.6		P
Zinc		14.2100	B	11.0600	B	24.9		P
Cyanide		0.7000	U	0.7000	U			AS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-011

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1626

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q	
74-87-3	Chloromethane		10	U	
74-83-9	Bromomethane		10	U	
75-01-4	Vinyl Chloride		10	U	
75-00-3	Chloroethane		10	U	
75-09-2	Methylene Chloride		10	U	
67-64-1	Acetone		10	U	
75-15-0	Carbon Disulfide		10	U	
75-35-4	1,1-Dichloroethene		10	U	
75-34-3	1,1-Dichloroethane		10	U	
540-59-0	1,2-Dichloroethene (total)		10	U	
67-66-3	Chloroform		10	U	
107-06-2	1,2-Dichloroethane		10	U	
78-93-3	2-Butanone		10	U	
71-55-6	1,1,1-Trichloroethane		10	U	
56-23-5	Carbon Tetrachloride		10	U	
75-27-4	Bromodichloromethane		10	U	
78-87-5	1,2-Dichloropropane		10	U	
10061-01-5	cis-1,3-Dichloropropene		10	U	
79-01-6	Trichloroethene		10	U	
124-48-1	Dibromochloromethane		10	U	
79-00-5	1,1,2-Trichloroethane		10	U	
71-43-2	Benzene	10	±	J	*
10061-02-6	trans-1,3-Dichloropropene		10	U	
75-25-2	Bromoform		10	U	
108-10-1	4-Methyl-2-pentanone		10	U	
591-78-6	2-Hexanone		10	U	
127-18-4	Tetrachloroethene		10	U	
108-88-3	Toluene		10	U	
79-34-5	1,1,2,2-Tetrachloroethane		10	U	
108-90-7	Chlorobenzene		10	U	
100-41-4	Ethylbenzene		10	U	
100-42-5	Styrene		10	U	
1330-20-7	Xylenes (total)		10	U	

* INSTRUMENT CONTAMINATION

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWD06

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-011

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1626

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-011

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9025

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-011

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9025

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	25	U	
100-02-7	4-Nitrophenol	25	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10 U ~~1~~	J	*
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10 U ~~4~~	J	*
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U ~~3~~	BJ	*
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

000049

* BLANK CONTAMINATION

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GWPWD-06

Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-011

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9025

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~UNKNOWN~~	~~22.79~~	~~3~~	~~J~~	*

*BLANK CONTAMINATION

000050

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD-06

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-2

Sample wt/vol: 979.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta-BHC	0.051	U
319-86-8	delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.051	U
5103-74-2	gamma-Chlordane	0.051	U
8001-35-2	Toxaphene	5.1	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWPWD-06

Lab Name: QUANTERRA_MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix (soil/water): WATER Lab Sample ID: 18882-011

Level (low/med): LOW Date Received: 09/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	u 21.0	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	1.8	U		P
7440-39-3	Barium	144	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	87800			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	u 4.8	B		P
7439-89-6	Iron	2330			P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	45400			P
7439-96-5	Manganese	uJ 34.5		E	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.8	U		P
7440-09-7	Potassium	u 1560	B		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	18500			P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	u 21.4	B		P
7440-66-6	Zinc	u 19.5	B		P
	Cyanide	0.70	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD96

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-012

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1627

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylenes (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWD96

Lab Name: QUANTERRA MO Contract: 707.03

Lab Code: ITMO Case No.: SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-012

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: GSMP1627

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: not dec. _____ Date Analyzed: 09/18/98

GC Column: RTX-502.2 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD-96

b Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-012

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9026

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD-96

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-012

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9026

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
51-28-5	2,4-Dinitrophenol	25	U	
100-02-7	4-Nitrophenol	25	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10 U ~~2~~	J	*
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10 U ~~5~~	J	*
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U ~~3~~	BJ	*
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

000062

* BLANK CONTAMINATION

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWD-96

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-012

Sample wt/vol: 1000 (g/mL) ML Lab File ID: H9026

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~UNKNOWN~~	~~22.79~~	~~3~~	~~J~~	*

* BLANK CONTAMINATION

000063

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWD-96

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-3

Sample wt/vol: 996.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWPWD-96

Lab Name: QUANTERRA_MO_____ Contract: 707.03____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: ACS6_____

Matrix (soil/water): WATER Lab Sample ID: 18882-012

Level (low/med): LOW__ Date Received: 09/17/98

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	U 35.2	B		P
7440-36-0	Antimony_	33.0	U		P
7440-38-2	Arsenic__	1.8	U		P
7440-39-3	Barium___	135	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium__	2.6	U		P
7440-70-2	Calcium__	86200			P
7440-47-3	Chromium_	U 12.6			P
7440-48-4	Cobalt___	2.4	U		P
7440-50-8	Copper___	U 5.0	B		P
7439-89-6	Iron_____	2260			P
7439-92-1	Lead_____	0.90	U		P
7439-95-4	Magnesium	43800			P
7439-96-5	Manganese	UJ 34.9		E	P
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___	10.8	U		P
7440-09-7	Potassium	U 2120	B		P
7782-49-2	Selenium_	2.2	U		P
7440-22-4	Silver___	5.0	U		P
7440-23-5	Sodium___	17800			P
7440-28-0	Thallium_	2.8	U		P
7440-62-2	Vanadium_	U 29.6	B		P
7440-66-6	Zinc_____	U 24.8			P
_____	Cyanide__	0.70	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

000012

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWY-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-013

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9027

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWY-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-013

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9027

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	26	U	
100-02-7	4-Nitrophenol	26	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	26	U	
534-52-1	4,6-Dinitro-2-Methylphenol	26	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	26	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10 U ~~2~~	J	*
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10 U ~~5~~	J	*
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U ~~3~~	BJ	*
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

* BLANK CONTAMINATION

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWPWY-06

Lab Name: QUANTERRA MO Contract: 707-03

Lab Code: ITSL Case No.: S88208 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 18882-013

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: H9027

Level: (low/med) LOW Date Received: 09/17/98

% Moisture: decanted: (Y/N) Date Extracted: 09/22/98

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/05/98

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~UNKNOWN~~	~~22.79~~	~~3~~	~~J~~	*

* BLANK CONTAMINATION

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWPWY-06

Name: QUANTERRA/W.SACRAMENTO Contract:

Lab Code: ECAL Case No.: 301639 SAS No.: SDG No.: ACS6

Matrix: (soil/water) WATER Lab Sample ID: 301639-5

Sample wt/vol: 965.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 09/19/98

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 09/22/98

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/07/98

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.052	U
319-85-7	beta-BHC	0.052	U
319-86-8	delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.052	U
5103-74-2	gamma-Chlordane	0.052	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GWPWY-06

ab Name: QUANTERRA_MO_____ Contract: 707.03____

ab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: ACS6_____

atrix (soil/water): WATER Lab Sample ID: 18882-013

evel (low/med): LOW__ Date Received: 09/17/98

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 43.0	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	1.8	U		P
7440-39-3	Barium	133	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	77900			P
7440-47-3	Chromium	2.7	U		P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	2.9	U		P
7439-89-6	Iron	2890			P
7439-92-1	Lead	0.90	U		P
7439-95-4	Magnesium	41100			P
7439-96-5	Manganese	UJ 30.3		E	P
7439-97-6	Mercury	0.14	B		CV
7440-02-0	Nickel	10.8	U		P
7440-09-7	Potassium	1220	U		P
7782-49-2	Selenium	2.2	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	18900			P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	U 21.3	B		P
7440-66-6	Zinc	U 17.2	B		P
	Cyanide	0.70	U		AS

lor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

lor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

mments:

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